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SUCCESSFUL REMOVAL OF AN OSSEOUS POLYPUS FROM THE NASAL CAVITY OF A HORSE.

BY GEORGE FLEMING, F.R.C.V.S., ARMY VETERINARY INSPECTOR, WAR OFFICE.

THE occurrence of Osseous Polypi must be exceedingly rare, as I can discover no mention of them in the literature of veterinary surgery, neither can I find them alluded to in that of human surgery, notwithstanding the diligent search I have made in a pretty extensive library. As is well known, the designation is applied to tumours which occur in or on mucous membranes more particularly, and is bestowed on them from their resemblance to certain zoophytes which attach themselves to rocks and other objects by a narrow foot-stalk or pedicle. True polypi may form on any mucous membrane, but they are perhaps most frequently met with, in animals, in the uterus, pharynx, and nasal fossæ (*Rhino-polypi*), and less often in the stomach, intestines, vagina, bladder, trachea,* and bronchial tubes. According to their structure, they are usually described as *mucous*, *soft* or *vesicular*, when their substance is soft and spongy, and gorged, as it were, with fluid; *hard*, when they are dense, as the fibrous or fleshy polypi; and *schirrous* or *cancerous polypi*. But, as I have just said, I cannot find any reference to bony polypi, and therefore I consider the following description of more than

* So long ago as 1857, I recorded in the *Veterinarian* a case of Tracheal Polypus occurring in a troop horse.

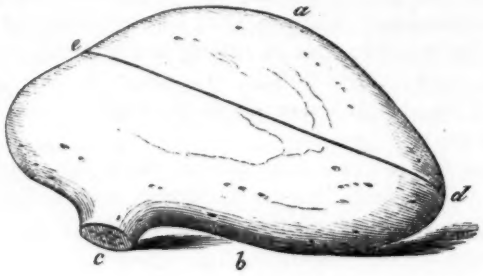
ordinary interest, not only from a pathological, but also from a surgical point of view.

Some time ago, my friend, Mr. Ison, M.R.C.V.S., of Atherstone, wrote to me concerning a polypus in the nasal cavity of a three-years-old draught colt, which he had tried to remove in the ordinary way, but had failed, owing to its being so unusually dense; and requested my opinion as to further surgical procedure. Surmising that the polypus must be of a very unusual character when it could not be removed by so experienced a practitioner, I recommended another attempt, and with the ecraseur, and if he thought I could assist him in operating, that I would gladly do so. In a few days he wrote again, and expressed a wish that I would help him. On arriving at the farm, some twelve miles' drive by a rugged road from Nuneaton, the colt, a roan or grey entire, and a rather vicious animal, was cast in a grass field (on a wet and stormy day), near side upwards, as the tumour was in the near nostril. On opening this nostril, the lower part of the growth was immediately seen. It was red, rather inflamed-looking, and occupied so much of the nasal fossa that the finger could only be passed a very short distance between it and the nasal bone, the floor and outer part of the cavity being completely filled, while the septum nasi was slightly pushed into the right fossa. On passing up the finger over its surface it was found to be abraded, and small spiculæ of bone could be felt. This marked the place where Mr. Ison's forceps had seized it. The mass was quite immovable, and from its shape filled up the cavity so closely, that it was quite impossible to detect its place or mode of attachment.

I must confess that I felt much taken aback at this formidable, and, to me, entirely novel condition, and it was evident at once that there was no need to be surprised at Mr. Ison's trouble about it. At first it almost looked like a hopeless case, especially considering the local circumstances and state of the weather; but I thought it a pity, after travelling so far, not to do something. Suspecting that we should have to remove a tumour unusually dense, I had taken with me from London, not only a chain ecraseur, but also one of Mr. Arnold's single steel-wire ecraseurs which I had obtained for a previous oper-

ation, but had not employed. From the position and volume of the growth it was useless to try the chain, as it could not be passed through the extremely narrow space existing between the nasal bone and the polypus, and it was therefore decided to try the steel wire. The horse's head was raised by means of a sack stuffed with straw, the vertex of the head being kept highest, nose lowest, in order to prevent the effused blood passing into the larynx. With extreme difficulty the loop end of the wire was passed up as high as its length would allow, when each side was pressed down to the floor of the fossa, to make it grip somewhere above, while Mr. Ison turned the handle. But twice the wire slipped off, there was considerable hæmorrhage, and the case appeared to be desperate. A third trial was resolved upon, and the wire was again introduced; but it was working where neither the eye nor the hand could guide the loop, and the rigidity and elasticity of the wire made the manipulation all the more troublesome. This time the loop, after some turns of the handle, was found to have fixed itself somewhere in the upper part of the tumour, and Mr. Ison continued turning the screw, while I kept the sides of the wire firmly held down in the floor of the cavity. Mr. Ison had a tough task, as the resistance to be overcome was very great, and I trembled for the safety of the wire. Fortunately it remained intact, and in a few minutes a large bony mass—a section of the upper part of the tumour—was removed. The finger of one hand could now be passed up the nostril, and it was discovered that the growth was really an osseous polypus, the pedicle being high up, and attached to the superior maxilla. With some considerable amount of force, this pedicle was broken by means of the fingers, but the portion was only partially detached, being still held by the mucous membrane, which was greatly thickened all over the growth, and passed so far beyond reach that the tips of the fingers could only now touch it. We had nothing but dissecting forceps, and they were far too short; so after a time a visit had to be paid to the farm kitchen, where a long, thin poker, slightly hooked at the end, was procured, and by means of this the entire mass was quickly taken away. There was no hæmorrhage, and the nasal cavity was quite patent; nothing abnormal could be felt,

and the serious obstruction to the respiration, which had existed before the horse was thrown down, was no longer present. I am informed that the colt was at work next day, perfectly well, and has remained in good health. The growth (of which a drawing is here given) weighs 4¼ ounces; it is 4½ inches long, 3¾ inches broad,



and 1¾ inches thick in the centre; while the pedicle (c) is only one inch in diameter. In shape it is a long flattened mass, convex on its free or superior border (a), straight on its inferior or attached border (b), narrow towards the inferior extremity (d), and rather angular at its upper end (e), which caused the wire to slip off. Indeed the loop of the wire had only fixed itself in the middle of the upper border (e), not at the base, and this made the task of cutting through the polypus all the more arduous, as the section was made nearly through its longest diameter and thickest part. In texture, the pedicle is dense osseous tissue, the body of the polypus not being quite so hard, but somewhat like rather close cancellated tissue. The mucous membrane investing it is thick and inclined to be dense. Nothing was known as to the history of this growth; it had only been observed two or three months before, when the breathing became obstructed, and it was believed that it had increased in size rather rapidly.

I cannot speak too highly of my first trial of the single steel-wire ecraseur. Without it operation in this case could not have been ventured upon, and the manner in which it cut through tissue that nothing but a chisel could have touched, but which

it would have been the height of folly to have tried, was something marvellous. It can certainly be commended not only as by far the best polyptome in existence, but also for the removal of all dense tumours, supernumerary digits, limbs, etc., where the chain ecraseur would be either too thick, not sufficiently strong, or, from its too great flexibility, not capable of being passed into a narrow canal. The only fault I had to find with the steel wire in this instance was its rigidity and elasticity, which rendered it exceedingly difficult to adapt to the particular outline of the polypus, especially as the finger or fingers could not accompany it upwards.

It might be said that this growth was only a homologous osteomatous tumour; but from its shape and location, it undoubtedly as well deserves the name of polypus as if it were composed of fibrous tissue.

THE TRANSMISSIBILITY OF DIPHTHERIA FROM CALVES TO PIGS.

BY R. R. COLE, M.R.C.V.S., HINCKLEY.

[Having met Mr. Cole recently, while visiting in his neighbourhood, he casually alluded to the subject of Diphtheria in animals, and related an instance of its transmissibility from calves to pigs. Seeing the importance of the subject, we requested him to furnish us with the leading features of the occurrence. This request he has kindly complied with in the following communication.]

THE outbreak of Diphtheria took place on a farm about a mile from Hinckley, in the occupation of my late partner, Mr. J. M. Goude, M.R.C.V.S.

The first case noticed was that of a calf about five months old, which had been seen the day before apparently well, but was found the next morning in a dying state. A slight swelling was noticed around its throat. No *post-mortem* examination was made, but on cutting into the swelling it was found to be light-coloured, and not dark as in "Black-leg."

Orders were given for it to be buried, but the man who was doing so left it for a few minutes, and on his return found one of the sows in the yard eating part of the intestines.

Mr. Goude, however, did not know of this fact until some time after this, and when the other pigs were taken ill.

The next morning this same sow was noticed to be amiss, and her throat very much swollen. The day after two of her young pigs, about seven or eight weeks old, were found with their throats swollen. They died in about twenty-four hours after being taken ill. Calling on Mr. Goude at this time, he told me about the cases, mentioning that he had opened one of the pigs that died, and finding a large amount of exudation round the throat, and the fauces highly inflamed, but that the contents of the chest and abdomen were healthy.

At this same time another sow was ill with swollen throat, and the day after two of her pigs, about eight or nine weeks old, were seized, and died in a similar manner to the two first.

These Mr. Goude sent in for me to examine, which I did in company with Dr. R. Bradshaw Smith of this town.

The swelling round the throat and neck, as in the previous cases, was very great, the œdema arising from effusion of a pale straw-coloured fluid into the areolar tissue.

The cervical and submaxillary glands were all enlarged and inflamed. On the edge of each corner of the soft palate and tonsil was a tough, dark-coloured membrane, about the size of a shilling, and in appearance something like a dirty piece of chamois leather. This, when taken hold of at one edge by a pair of forceps, readily peeled off entire, leaving a red, inflamed surface underneath. There was no inflammatory appearance of either pharynx or windpipe. The contents of the thorax and abdomen were healthy.

Doctor Smith's opinion of the case was that it was a most marked one of Diphtheria.

The last animal attacked was the boar, aged twelve months. He was taken ill a week after the calf, and, as in the previous case of the two sows, his throat was enormously swollen for two or three days, during which time he took no food. The swelling then gradually disappeared, and he is now, in common with the two sows which were attacked, and the other young pigs which did not take the disease, in perfect health.

The boar pig was in a separate yard and sty by himself, quite away from the other pigs.

EPILEPSY IN TROOP HORSES.

BY H. THOMSON, M.R.C.V.S., A.V.D., 19TH HUSSARS.

IT is not often that veterinary surgeons have to deal with this affection in horses, and, judging from my own experience, it is exceedingly rare in the army, for during a service of some years I have only met with one case, and that lately; perhaps, therefore, a short account of the case may not be unacceptable to those who have not yet been fortunate, or unfortunate, enough to have met with the equine form of the disorder.

It has not yet, as far as I am aware, been exactly determined upon what the epileptic state depends, even in the human subject, for in the majority of many cases of *post-mortem* examinations of epileptic persons the brain and other organs have been found perfectly healthy (apparently). In dogs the malady has been ascribed to parasitic irritation of the intestinal tract, teething, such as a result of distemper. In the horse it has been known in some instances to succeed attacks of debilitating disorders, such as Catarrhal Fever, also injuries of the head; but in the case I am about to describe I can discover no cause whatever—nothing in the history of the animal, or in the symptoms presented by her, either when quiet or when under the influence of the fits.

Before proceeding to notice the state of the patient during a fit, it will not be out of place to describe her appearance when in health, or rather when not in a fit. To a casual observer, nothing would appear much amiss with the mare; but on a more careful examination she appears depressed and unhappy, does not seem watchful like other horses, and yet, on being approached, becomes very nervous and excitable. The pulse is rather slow, about twenty-eight or thirty, and soft; temperature of the body, uniform and normal; conjunctivæ, slightly yellow; evacuations, regular and natural (altered of course by treatment); urine, rather high-coloured, but usual in quantity. In fact, there are no great differences in appearance between this and any other mare.

It appears, from her history, that nothing unusual was noticed about her appearance or behaviour, until about eighteen months ago, when she was seen at times to be affected with a twitching

of the facial muscles, which soon passed off; and when she was so affected, that she carried her head rather awkwardly and stiffly. Later on, she became dangerous in the ranks, on account of the large muscles becoming affected with tetanic spasms, during which she appeared to lose all control over her actions. She has gradually become worse, until now she suffers, at irregular intervals, from fits which present the characteristics shown in the following clinical history:—

Troop-mare A 23, fifteen years old, with eleven years' service, was on Sept. 6th reported to me as being mad, and suffering frequently from fits which made her dangerous, not only to herself, but to other horses and the men attending them. She was therefore admitted to hospital, and entered in the case-book as suffering from "Mania Periodica." I was not aware at the time of the exact nature of the case, not having seen the mare under the influence of the malady; but the exaggerated accounts of the symptoms led me to expect a great deal more violence, and of an intentional character, than was really the case. Owing to the shortness in duration of the fits, and the irregular intervals at which they occurred, I was unable for some time to get at their true nature, as I had not contrived to see the patient until she had nearly or quite recovered; but at last she very conveniently arranged a fit while I was looking at her, when the following symptoms were presented:—

The first indication of an approaching fit is quivering of the facial muscles; this gradually extends to the whole of the superficial muscles, until the patient appears to be quivering and twitching all over. This state is soon succeeded by tetanic spasms of the muscles of the neck, back, and tail, those of the limbs also to a slighter extent. The appearance now is somewhat similar to that of a horse suffering from Tetanus. The ears are pricked forward, the tail slightly erected; the eyes appear, as it were, starting out of the head, the pupils being greatly dilated; the patient begins to walk in a stilty fashion round the loose box, trying to climb the walls, although unable to see; and presently, placing the forehead against a wall, remains fixed, pressing so hard as to bruise the skin. There is not much actual violence, but rather unconsciousness. The pulse does not ap-

pear to be much altered, a little harder perhaps, during the fits, which, if left alone, gradually pass off in about twenty-five minutes, the *finale* being an expulsion of flatus and semi-liquid fæces. Cold water dashed upon the head gives great relief, and considerably shortens the duration of a fit. I am told that she has been known to foam at the mouth. This is positively stated by two witnesses; but I have not noticed it myself. She has never been known to fall, and never appears to lose control over the limbs.

The treatment, so far, has been very simple, and apparently tolerably efficacious, for the patient has remained free from fits since Oct. 11th. It has consisted in laxative medicines and diet, with isolation and perfect quiet, as far as possible, with exercise.

The mare being still alive, conjecture as to the probable cause or causes of this condition would be simply guess-work; but, from the very irregular intervals at which she suffers, the cause is possibly intermittent, though of what nature I have not an idea, or rather I have many ideas, none of which are probably correct.

ABSCESS IN THE BRAIN, SUPERVENING ON INFLUENZA.

BY J. B. MARTIN, M.R.C.V.S., ROCHESTER.

HAVING read in the VETERINARY JOURNAL for October a narrative of some cases of brain disease supervening on Influenza, contributed by Mr. Blakeway, I am induced to forward you a brain of a four-years'-old cart-horse that died with precisely the same symptoms showing themselves as he describes. Last June five horses were suffering from Influenza. They were treated by an unqualified man in the neighbourhood, and two died; the others apparently recovered, but did not thrive. They fed well, but looked unthrifty. In the beginning of September, one, a four-years'-old cart-horse, the owner observed to be dull, and that it did not eat quite so well as usual; but he sought no professional advice until the beginning of the present month (October), when I was requested to see the animal. He was very weak and emaciated, breathing short, dull, and not taking any notice of

surrounding objects; fed a little. I had him walked out. He went stiff, and was lame on the near hind leg; this had not been noticed before. The shoe was taken off, and I examined both foot and leg, but could detect nothing to account for the lameness. The pulse was small and weak. The next day there was total loss of appetite, breathing shorter, and clammy mouth. The horse was in a state of semi-consciousness; he would press his head against the side of the stable, or anywhere accessible. In placing a pail of water in front of him, he would hold his head at the bottom of the pail, with the water up to his eyes, and not attempt to take it out to breathe. The following day he was down in the stable—which was very small—and quite comatose; and as in Mr. Blakeway's case, there was not any frenzy. Wherever his head happened to go, there it remained perfectly quiet without a struggle. During the night of this third day he died. From the first the case was clearly one of pressure on the brain.

I have not cut the brain about much, but it will be seen that the meninges are intensely inflamed, and the vessels covering the brain itself are engorged with blood. Cutting through the membranes, there was a quantity of pus at the supero-posterior portion of the cerebrum, floating about on and between the hemispheres. Underneath the cerebellum there was an abscess, and also pus in the right lateral sinus. I have merely sent this case to corroborate Mr. Blakeway's opinion that we do sometimes get cerebral abscess supervening on Influenza.

[The brain, though somewhat decomposed, showed the lesions described by Mr. Martin. Abscess in the brain, due to Encephalitis or Pyæmia, is not at all uncommon in veterinary experience. It is sometimes a sequel or concomitant of acute and chronic infectious diseases. In the brain sent, the upper part of the right hemisphere of the cerebrum was much softened, and of a deep red hue, and in the centre of this patch was a soft, cream-like mass which, when poured out, left a cavity into which the end of the thumb could be inserted. This communicated with the right lateral ventricle. There was a similar spot on the left side of the cerebellum.]

ABSCESSES IN THE BRAIN, SUPERVENING ON STRANGLES.

BY J. C. JAMES, M.R.C.V.S., THORNBURY, GLOUCESTERSHIRE.

ON reading Mr. Blakeway's interesting report of "Cases of Brain Disease Supervening on Influenza and Strangles," in the October VETERINARY JOURNAL, it recalled to my mind an interesting case which came under my notice in April, 1877. The subject was a valuable pony, four years old. When requested to see the animal, I was told that it had suffered from Strangles about a fortnight previously. A large abscess had formed under the jaw, and had discharged freely for several days; and so well did the animal appear to be going on, that the owner did not think it necessary to call in a veterinary surgeon. I carefully examined the patient, and found it very dull, pulse full and slow; it refused food, and stood with its head in a corner or against a wall, and if any one attempted to move it, it would stagger about the box, and nearly fall down. The next day it lost all power to maintain the standing position, and fell down, when it commenced to struggle and fight, and continued to do so, at intervals, for nearly twenty hours. All efforts to assist or make it stand proved futile. I may state that I diagnosed the case as one of abscess forming in the brain. The abscess under the jaw had quite healed, and the animal had been to work two or three days before secondary symptoms set in.

I made a *post-mortem* examination, and sent the brain intact to Professor Axe. I received the following reply from him:—"I have not yet completed my examination of the brain, but so far I notice three distinct abscesses; viz., one in the cerebellum, one in the anterior lobe of the left hemisphere, and a third in the posterior lobe of the right hemisphere of the cerebrum. I have opened the ventricles, but do not find the abscesses to have any communication with them, nor with each other. To-morrow I hope to find time to make a microscopic examination of the brain-matter in the vicinity of the pustules."

Fleming says, in his excellent work on "Veterinary Sanitary Science and Police," article on "Strangles": "These abscesses may appear in various parts of the body ..... sometimes

they also form more profoundly, as in the parotid and mesenteric glands, and even in the testicles and brain; then, of course, the disease is much more serious."

PHARMACEUTICAL NOTES ON TURPENTINE.

BY R. PATERSON, M.R.C.V.S., DOWNHAM, NORFOLK.

"HOOSE," or "Husk," affecting calves, being again prevalent this season, those practitioners who are, like myself, situated in country districts where the pasture-land is low-lying and wet will no doubt be called upon to treat many of those cases.

Of the efficacy of turpentine in this affection, I believe we are, as a profession, generally agreed as to its superiority over other agents of this class. It has, however, the objection of being so easily recognized by the farmer when given in the usual way, mixed with oil, even although it is discoloured, while its well-known odour is at once a serious drawback to its use. The latter objection, I find, is most effectually hidden by spirits of cassia (made by one part Ol. Cassia, to seven parts spirits of wine). The adjunct I employ, which is not only cheaper and more cleanly, but is taken by the animal more readily than oil, is flour gruel. One pound of wheaten flour is sufficient to make about one gallon of gruel of a suitable consistency. The flour should be beaten, first, into a *smooth* paste, with cold water, and, when thoroughly free from lumps, boiling water added gradually, with constant stirring. It can, if desired, be darkened in colour by burned sugar, or, what is better, solution of aloes.

Of the high estimation that turpentine has deservedly attained as a general stimulant for cattle, it is needless for me to enlarge upon; but what I wish especially at this time to point out, is its great value when administered internally in cases of *post-mortem* hæmorrhage. The ergot of rye, so beneficial in human practice, has, as far as I have observed its action on cattle, been quite a failure, and I have not been always successful in stopping the flow of blood even with Liq. Ferri Perchloridi, while its action is much slower and less reliable in its results than turpentine. The

cold applications to the loins and vagina are, of course, also had recourse to.

Turpentine has also been used externally as a styptic, where the bleeding has been very extensive, and with the most gratifying results; indeed, I have seen its decided action in arresting hæmorrhage after other agents had been used in vain.

A beautiful *liniment* of *turpentine* for external use, and resembling much in appearance what is known as Elliman's "Royal" Embrocation, can be made in the following manner:—

Take of soft soap, 12 ozs.; powdered chloride of ammonia, 1 oz.; boiling soft water, 5 pints; turpentine, 1½ pint. Place the two first ingredients in a vessel deep enough, so that the contents, when stirred by means of a broad spatula or flat piece of wood, can be kept in lively intermixture until cold. The water, which should be at full boiling-point, is poured on the soap and chloride of ammonia, and the turpentine added gradually (about half a pint at a time) while the mixture is hot. If the liniment is at any time a little too thin, it can be thickened by the addition of a small quantity of turpentine when cold.

It will be found useful in sore throats, Rheumatism, as an application to the abdomen in Colic, and for a variety of other purposes. It possesses further the recommendation that it does not blemish the skin of the horse.

FILARIA IMMITIS IN THE HEART OF THE DOG.

BY E. A. HOLLINGHAM, M.R.C.V.S., REDHILL, SURREY.

As cases of the kind above mentioned are extremely rare in this country, I think a few details of the one I have had an opportunity of observing may be of some interest.

On October 13th, my advice was asked by a gentleman living in this town concerning a Gordon setter dog recently arrived from Japan, which he was taking charge of for a friend. I found the animal very dull; the pulse was of a peculiar character, sometimes long and full, and then for a few beats quick and wiry; the bowels were constipated, but there was no fever; there was frequent vomition, and I also learnt that the dog was subject

to fits. I treated the animal with the view of remedying the constipation, but on calling to see it on the morning of the 16th, I found it had died during the night. I made a *post-mortem* examination by request. By the appearance of the body, I should judge it had died in convulsions. The tissues were slightly anæmic, but not emaciated; the liver was enlarged and deeply coloured with bile, and the gall-bladder full; the left cavities of the heart were stuffed with filariæ, as also the pulmonary artery; the other viscera were healthy, and I could find no sign of any other class of parasite in the body. The dog being the property of a medical gentleman in London, he requested me to forward him the specimen, which he intends ultimately to deposit in the museum of the Royal College of Surgeons.

[We hope Mr. Hollingham has preserved some of these filariæ for the museum of the Royal College of Veterinary Surgeons.]

THE CONTAGIOUS DISEASES (ANIMALS) ACT AND TUBERCULOSIS.

BY H. R. BRADSHAW, M.R.C.V.S., PORTRUSH, IRELAND.

IT appears to be pretty well understood among pathologists of the present day that Consumption is infectious,—capable of transmission by certain means from one animal to another. We know that man and other animals have become affected with the disease where the milk and flesh of consumptive subjects have been used as food.

Recent investigations go to show (*vide* Dr. Cameron's address on "Micro-organisms and Disease" in the VETERINARY JOURNAL for November) that Consumption and all other tubercular diseases are highly contagious, as well as infectious; that they are due to a microscopic organism which can be cultivated, and that they can be reproduced in healthy animals after such cultivation.

By the discoveries recently made regarding germs as being the true source and fountain from which specific blood-poisons spring, and that these arise from a known origin, and not from spontaneity, a new era in medicine has commenced.

All infectious diseases seem now to be a product of fermentation, so to speak, by these spores, each specific disease having a specific germ; and it would appear that Tuberculosis is no exception. Much, therefore, that was heretofore in doubt or altogether unknown regarding these maladies, will now be cleared up, and, let us hope, settled for ever.

If Consumption is contagious—infectious we know it to be—the sooner it is added to the list of diseases in the Act of '78 the better.

In my province as inspector, I came upon a case of Tuberculous Pneumonia a short time ago, the subject being a young cow. Although the case was one that might readily have been put down as Pleuro-pneumonia, yet my practical knowledge of the latter disease prevented me from falling into an error. I reasoned with myself, and thought that, although I had no right to detain the animal under the Contagious Diseases (Animals) Act, yet it would not look very creditable, nor perhaps altogether justifiable, for me to send her with a clean bill of health over the water.

Besides, it seemed absurd for me to pass an animal in such a state, while perhaps a meat inspector in Glasgow would reject the carcase, as he had a right to do, for being diseased. I may add here, *en passant*, that I was informed afterwards that this animal was bought at an auction for £1; and the owner himself informed me that she would be readily bought, and was intended, for butcher's meat in Glasgow. Here, then, if I allowed this cow to be shipped, I should be putting a premium, as it were, on the diseased meat traffic.

After having first communicated with the Department, I next called the attention of the inspector to the local authority to it, and he wrote a report stating that the animal was affected with Tuberculosis, which was infectious. This was brought before the board of guardians (the local authority), who entered on their minutes that such a report was made, but took no further action in the matter. Of course the case was not one for a prosecution, as there was no offence against the Act of 1878.

But where were the expenses for the animal's keep during this time to come from? I believe the owner could not have been

compelled to pay; but he saved any trouble on this head by paying voluntarily.

The cow was allowed to remain here until she died, which was about three weeks from the time she was presented for shipment. I had an opportunity of making an examination of the carcase, which showed Tuberculosis of a most extensive nature in the lungs, etc. I think every inspector under the Contagious Diseases (Animals) Act should have the same facilities afforded him for dealing with this disease as if it were Pleuro-pneumonia.

THE PROPERTY AND FUNCTION OF DISEASE-GERMS.

BY RICHARD W. BURKE, M.R.C.V.S., ARMY VETERINARY DEPARTMENT, ALDERSHOT.

MANY veterinary practitioners have recently pooh-poohed the idea of the agency of disease-germs as a cause of specific disease, maintaining their presence to be a mere concomitant, and refusing to believe that they had any real share in the process of disease. But it has really been long since demonstrated, and this beyond doubt, that the particulate organic germ of each specific (communicable) disease furnishes the *primum mobile* of that change; that the presence of this germ is, in fact, a *sine quâ non* in the production of disease; a doctrine which, though confirmed by the force of actual demonstration, will have to fight its way for some time against a whole army of prejudiced authorities. The precise relation of bacteria to contagion was long a subject of speculation, and every new fact brought forward with regard to it seems to be hailed or rejected by some persons, according as it appears to favour or oppose some theory upon the subject. From what we now know of the life-history of certain bacterial forms, there is strong presumptive evidence in favour of their being the actual contagia in certain diseases. What greater proof do we require in support of this doctrine, than the success in the *communicability* of specific disease from the sick to the healthy? I will, therefore, take it as now *proved* that the contagium in every case is a germ of some sort, possessing the

power, when introduced into the body of an animal, of setting up its own disease process. Those opposed to so elementary a truth are a class of whom it may be broadly inferred that they are deficient in that power which enables a man to see how ignorant he needs must be. Not long ago the *Bacterium termo*, the particular ferment of putrefaction, was thought to be not the destructive agent which occasioned putrefactive change, but said to merely revel amidst the chaos of its results, like fowl in the wake of a vessel; until the beautiful experiments of Chiene and Ewart enlightened the new medical world that this was an utter delusion, not fact. Chiene was the first who showed that *dead* tissue was not necessarily *putrid*, as he has proved by demonstration that there is no presence of bacteria in it, nor of their spores; because inoculation of it, in large quantity, into the system of an animal is followed by negative results, but when it is exposed to the action of the air it acquires active properties.

The notion that bacteria are harmless organisms, and that they exist in countless numbers in all the organs of the body, is erroneous. Their presence has only been demonstrated on *epithelial* surfaces, whilst on *endothelial* surfaces they have, on the contrary, been shown not to exist—during life at least.* And they are "harmless" only whilst the vitality of their *host* is resistant. Reference to my article on Septicæmia, contained in the VETERINARY JOURNAL, will show that I have treated of this matter as far back as May last, but doubtless it has escaped the attention of some readers.

TONICS.

BY J. DOWLING ALLMAN, PHARMACIST.

UNDER this head are classed medicines which, when administered internally, are supposed to act upon the nutrition of the

* Professor Lister, in an experiment he performed, has shown that if blood be run from the vein of an animal through a calcined glass tube into a glass flask that has been heated to 300° F., and allowed to cool in a chamber whose air has been purified by the fine spray of carbolic acid, the flask may be kept simply covered with an inverted watch-glass and under a bell-jar without putrefaction. Yet, under these conditions, *if the blood be inoculated with bacteria*, it putrefies rapidly. Lister also showed that the same holds true of milk, with regard to the *Bacterium lactis:* it is not present in the milk when secreted, but appears in it only after external contamination.

various tissues, so as to restore lost tone; not exactly by calling into play the vital principle of contractility, but by increasing the power in the part. Such substances are known and acknowledged as Tonics. Now one of the great difficulties in veterinary practice is to find a tonic that is efficient and commendable in its action, but not too costly. Most observant veterinarians have noticed the frequent failure of sulphate of iron as a tonic; in fact, it is well known to therapeutists and pharmacologists that this salt frequently does more harm than good, owing to its only being partly dissolved, and taken up in the blood; that portion remaining acting as an irritant on the mucous membrane of the stomach and intestines. In order to make good this deficiency in veterinary pharmacy and therapeutics, I prepared a compound, the active ingredients being the amorphous quinine and the solution of dialysed iron, which, for brevity and convenience, I have termed "Mist. Tonica banc." I introduced it to the notice of the veterinary profession, and although it has only been before them for something like eighteen months, it has already become a popular remedy with those practitioners who have given it a trial, not only as a general tonic, but also as an antipyretic. It has several most decided advantages over any of the tonics hitherto used in veterinary practice, as it is not costly, and owing to its entire solubility, it is easily and rapidly absorbed in the blood; so that in diseases of malnutrition it can be administered with marked and very appreciable results. As an antipyretic it is certainly one of the best of remedies, and can be used whenever there is serious elevation of temperature. In Septicæmia and Pyæmia, accompanied with high fever, it is especially manifested during those stages of disease in which the natural tendency is towards a lowering of temperature, and in preventing a rapid return of the excessive fever. For this latter purpose my friend, Mr. E. Faulkner, M.R.C.V.S., of Manchester, has given it a fair trial, and from his careful observations he was perfectly satisfied that it lowered temperature, pulse, and respiration. In the extreme debility occurring at times during convalescence from acute disease, where the patient exhibits signs of prostration and shows no inclination for food, the compound can be brought into play with inestimable value, not

only in repairing broken-down tissue, but improving the general condition, and producing permanent and decided results on the patient. I have most abundant testimony from many eminent veterinarians as to its unmistakable value in the extreme debility occurring after an attack of severe Influenza, and other high fevers. From various clinical notes it is proved that it does not produce constipation of the bowels, although it has been exhibited in severe prostration for a given time. This is explained by the fact that the constituent known as dialysed iron is deprived of its astringency by a chemical process of separation; hence the term (dialysis). It is a perfectly neutral and miscible preparation, the dose being one to two fluid ounces diluted to ten ounces of water, and administered twice daily, or *si opus sit.* I commend it very strongly not only as a food to the system, but also as an important curative agent, and hope to see it rank and take as prominent a position with the profession as many of the other substances that I have introduced for the practice and art of veterinary science. The compound can be had from Messrs. C. J. Hewlett and Son, Wholesale Pharmacists, Charlotte Street, Great Eastern Street, and is known as "Mist. Tonica banc."

GANGRENOUS STOMATITIS — TUBERCULAR STOMATITIS — DIPHTHERITIS? A DISEASE AFFECTING THE TONGUE AND MOUTH OF THE OX.

BY A. METHERELL, M.R.C.V.S., BRIGHTON.

WE ought all to be very much obliged to Mr. James for his article in the Journal for November, also to Captain Russell, Mr. Macgillivray, and other gentlemen who, from time to time, record their experience with the above disease, of which it is hardly too much to say, that it is the bane of many country veterinary surgeons' practice. We must remember that of all organs, it is the tongue which is insidiously invaded, nearly the whole of which may be involved and permeated by this destruc-

tive agency. Mr. James says he *used* to cut and scrape the tongue, and that he now finds Tinct. Ferri. Perchlor., with an equal part of water efficacious, if used daily at first. Does Mr. James still cut or scrape the tongue, or will this application cure without? If so, it is indeed in every way a valuable discovery. To those who have not seen this disease, I will remark that at first the subject of it will lose flesh, and will soon show a difficulty in gathering food, even from the manger or crib, and in masticating it; also an inability to graze. Then will be noticed a flow of saliva, occasional smacking of the lips, and an accumulation of frothy saliva about the mouth, with serous effusion in the inter or submaxillary space. The veterinary surgeon naturally examines the mouth, and sees an appearance generally about the dorsum of the tongue, like a piece of pancreas embedded there. The animal is then cast, and whilst the mouth is kept wide open by means of the balling iron, the operator, using the ordinary fleam, makes deep incisions into the parts affected, and dresses them. The animal during this time will obligingly cough into the face of the operator a comforting compound of medicated sanguineous saliva, which, if he is an enthusiastic pathologist, he will be at liberty to enjoy. The mop of tow, as described by Mr. James, will be found useful, and we have had good results from Sol. Ag. Nit., one stick to six ounces of water. Having in view the intense, protracted and systematic torture, involved in the periodical cutting and dressing; the fact that in any case the animal becomes a skeleton; and again, that he will probably never graze well, it is both humane and politic to advise slaughter in many cases, when the owner is willing, because the result of treatment seldom satisfies him.

We have found these cases associated with what in some parts are called "wens," and which, whether taking the form of abscesses or not, are best treated with Acid. Sulph. applied with friction to their bases, by means of a suitably-shaped piece of brick or stone, or a piece of hard wood. We have a case now in a bull, of a cluster of four wens in a line along the lower edge of the jaw.

FRACTURE OF THE OSSA SUFFRAGINIS AND CORONÆ, WITH RUPTURE OF LARGE METACARPAL, DIGITAL, AND PLANTAR ARTERIES, AND LACERATION OF THE TENDONS OF EXTENSOR PEDIS, FLEXOR PERFORATUS, AND INFERIOR SESAMOIDEAN LIGAMENT.

BY A. F. APPLETON, M.R.C.V.S., LONDON.

ON Saturday, the 22nd of October, I went with Mr. Anderson, A.V.D., to Kensington Barracks, to see a horse of the 11th Hussars stationed there, that had met with an accident.

It appears that the animal ran away with an orderly, and in trying to evade coming into collision with a conveyance coming towards him, slipped up on the wooden pavement, and sliding along, his near fore leg came in contact with the tyre of the wheel of a cab standing on the street. This happened close to the barracks, where he was taken with some difficulty. On our arrival we found the animal in a loose box, standing on three legs, and evidently suffering from a complicated fracture of the os suffraginis of the near fore limb. There was considerable swelling from the knee downwards, and as the animal was in great pain, orders were at once issued to have him destroyed and the leg cut off at the knee.

Post-mortem Examination.—Upon removing the skin, we found large clots of extravasated blood down the whole course of the leg, which accounted for the swelling, and upon closer examination it was discovered to have come, in the upper part, from the large metacarpal artery, and in the lower from the digital and plantar arteries, all of which were ruptured. The inferior sesamoidean ligament and tendon of extensor pedis were also lacerated, as was one of the branches of the perforatus tendon.

We now came upon the os suffraginis, which was broken into about thirty pieces, more or less displaced, and the os coronæ, which had a piece broken off the inside of the proximal end.

Editorial.

EXCERPTS FROM CONTINENTAL VETERINARY JOURNALS.

BY J. H. STEEL, M.R.C.V.S., A.V.D.

WE are glad to note that recently the Army Veterinary Department of Belgium has met with some recognition from the Minister of War, Major-General Gratry. The scheme of reorganization which he has introduced has to an extent met and removed some of the grievances of our Belgian *confrères*. The highest grade was that of inspector, ranking as major, and the remainder of the service consisted of veterinary surgeons divided into three classes. In future the inspecting veterinary surgeon in chief will rank as lieutenant-colonel, and there will be two principal veterinary surgeons ranking with majors. These changes have been made without any augmentation in strength of the department. Also it is interesting to note that the veterinary and pharmaceutical ranks seem to be about on an equality in the Belgian service. But as *L'Echo Vétérinaire Belgique* shows the rather curious fact, that while in most corps the lieut.-colonel receives 7,100 francs and the majors 6,300 francs, the veterinary officers of the same ranks receive respectively only 6,500 francs and 5,100 francs. This the excellent Belgian journal justly stigmatizes as "a desire on the part of the Minister of War to place veterinarians in an inferiority as unwarranted as prejudicial, not only as regards their emoluments, but also in status and professional dignity." And it pertinently asks, "What justification is there for this whilst all Ministers of War are unanimous in recognizing how great may be the services rendered by a competent and zealous Army Veterinary Department?" and again argues, "The unjust exception is not only seen in comparison with the combatant branches, but especially with the Medical Department; and though we may look with hope on the change as a step towards that equality which ought to be between human and veterinary practitioners, we cannot help noting how between the two classes of surgeons there are still regrettable differences humiliating to veterinarians. In studies, intelligence, and attainments they are similar: the difference lies solely in the application of their knowledge; and although the aims of human medicine are higher, the veterinary practitioner, dealing with lower animals, requires equally severe studies, equal zeal, and equal self-sacrifice, and he renders not less great and useful services." It also points out another and greater defect in this new warrant, rendered the more serious as being but a repetition of the last (dated 1876, whereby the pay of 1st class veterinary surgeons was increased by 400 francs): the junior veterinary surgeons, those of 2nd and 3rd classes, are forgotten! They are affected negatively by this new warrant, which enables the seniors to remain on the active list longer, and gives them inducements to do so, and thus promotion will be very seriously retarded. Thus the senior officer, as before, will retire at the age of sixty, but the two coming next on the list, instead of retiring on attaining fifty-eight years of age, will, since they rank as majors, be allowed to remain on full pay until sixty years. The spirit of the system now is to improve the position of junior officers, a matter which, as it concerns regiments and other departments, has already attracted the War Minister's attention, and so let us hope the Veterinary Department will not lose its share of advancement in this respect.

The above-described changes in the position of officers of the compact and excellent Belgian Army Veterinary Department, will prove interesting to some of us here, as may the following details drawn from a report on Typhoid diseases among the horses of the 2nd Regiment of Guides, stationed at Tournay in the years 1879-80 and 1880-81, assuming an

epizootic character. The excellence of the report does credit to the author, M. Hugues, and to the service to which this well-known veterinary author belongs. The outbreaks are not in themselves of a very special character, being of the nature of that disease known here as Influenza. They commenced towards the end of November, 1879, assuming the sthenic form, and affecting especially the pulmonary organs. On the last day of the month twenty-four horses were affected, of which six died. At the end of December, and on 2nd January especially, the disease assumed the asthenic or adynamic form. Eight days later the disease decreased in severity and the number of fresh cases. On the 9th and 10th January two squadrons marched to Mons and back, and they had no horses affected during that time (but no fresh cases occurred meanwhile in the other three squadrons at Tournay), and about the 20th the disease assumed the characters of a Typhoid epizooty. Altogether it lasted three months, and affected 130 horses (troopers and officers' chargers), of which twenty-three succumbed. In 1880 the disease commenced 18th November, gradually increased in extent, and declined towards the middle of March; but whereas the previous outbreak attacked indifferently horses of all ages and squadrons, this affected only those purchased since that time. In 1879-80, strange to say, none of the baggage-waggon horses were attacked, though for ten days from 30th November, when the snow fell to such a degree as to render roads impassable, and the thermometer indicated 16° and 18°, these animals alone of the regimental horses continued to work. In 1880-81 four of these twenty-four horses suffered from the disease. Convalescence in many cases was very slow, and death sometimes took place after an illness of five or six months. From 15th August, 1880, to 15th January following, the men in the same barracks suffered from a Typhoid epidemic. The record of symptoms and *post-mortem* appearances is very full; but in discussing the nature of this disease, the author thus accounts for the absence of microscopical and chemical examinations. He continues, "But we are of opinion that analyses of this nature can and ought to be made only by persons of ascertained competence. It is because at the present time everybody pretends to *see* with the microscope, that there are so many diverse opinions on the same subject." Inoculations were attempted, but with little success. Rabbits died when some of the blood which had been taken from the carcase of one of the horses the morning after its death was introduced into their system: the blood had probably undergone *post-mortem* changes. A horse with an incurable fracture was similarly inoculated, but without any appreciable effect. The most marked features of the disease were a tendency to the separation in the tissues, especially the lungs and pleura, of fibrin and albumen from the remaining constituents of the blood, leaving that fluid noncoagulable; also a tendency to ulceration of tissue. It would seem as if one attack exempted from future illness of the same nature. The two winters were severe, the first especially; the horses were in fifty-one stables arranged in twelve blocks, with various aspect and dimensions of these stables; also while some sheltered only ten horses, others held twenty, and two even sixty or seventy; no ceiling, tile roof, with the lowest tiles forming openings for ventilation. Altogether even the greatest vigilance could not secure the inmates from exposure to draughts. Several officers' horses stabled in the town under good hygienic conditions were affected. M. Hugues does *not* consider it contagious or infectious. Prophylaxis comprised simply the most exact attention to hygiene, especially long marches out of the town, during which time the stables were thoroughly thrown open. "Emigration seems to us an excellent measure. It would be easy to carry out without great changes. It would suffice to construct movable wooden stables, which could be utilized at Beverloo camp during the manœuvres, and would replace the straw shelters at present used. Then

as soon as an epizootic showed itself in any garrison it would be necessary only to utilize these materials, and in a day or two these stables, in a suitable position as regards hygiene and security of the public, could be ready for occupation. Bleeding used in the sthenic stage either cured or assisted to cure the patient; it also did not seem to retard convalescence." The observations made on other agents used are good :—

Tartar emetic has a well-marked counter-stimulant action, which renders it almost a specific in Pneumonia.

Ipecacuanha causes a sort of parenchymatous anæmia by causing vascular contraction in the interstices of the tissues. Its action on animals, as determined by Dr. Pecholier, is sedative on the circulation and respiration; it especially causes pulmonary anæmia by determining the blood to the gastro-intestinal tube; but clinical observations on the horse do not allow us to expect much good from its use.

In the asthenic stage creosote, carbolic acid and phosphoric oil were found to be beneficial.

Vesicatories seemed useful, not only as acting locally, but also through their arousing action on the system in general. Mustard and setons together also gave good results.

The *mémoire* terminates with a detailed record of sixteen of the most severe cases, and altogether is well worthy of perusal as an example of how such outbreaks should be observed and recorded by a veterinarian who desires to combine "science with practice."

CASTRATION OF A CRYPTORCHID HORSE.*

ONE of the most frequent operations in veterinary practice is undoubtedly that of castration. Under ordinary circumstances, it is considered by most persons as easy and free from danger. Not so, however, with regard to the emasculation of cryptorchid horses. Regarded by many veterinary surgeons as impracticable, it is scarcely a matter for surprise that descriptions of the operation should be so meagre in the text-books on veterinary surgery.

Opportunity having, however, recently presented itself to me of performing the operation, I take the liberty of submitting to you the particulars, in the hope of their proving of interest; especially as they reveal the fact that a wound penetrating the abdomen and wounding the peritoneum is, in the horse, not necessarily fatal—an observation made by Wolstein as far back as 1797. (*Der Thierarzt im Kriege*).

Amongst the four-year-old castrated remounts supplied, in 1853, to the Uhlan Guard regiment, was one Uteschitelno. From a cursory examination no one would suspect the deception of which the horse was guilty. He was active and lively, like the others, and was consequently accepted.

On becoming attached to the regiment, however, its unruly and almost savage disposition and conduct when approached by other animals, especially mares, soon gave rise to the idea that Uteschitelno still possessed one testicle, on which he was brought to me for examination. On the left side of the scrotum was a cicatrix of tolerable large size, but nothing on the other side remained as evidence of prior-castration. On passing the hand into the rectum, the remaining testicle could be distinctly felt.

As the commander, whom I made acquainted with the facts, refused, on the ground of its danger, to permit the operation for its removal to be carried

* An essay read before the Veterinary Medical Association at St. Petersburg, December 5th, 1856, and translated from "Adams' Wochenschrift" by W. F. Garside, M.R.C.V.S.

out, the horse was sent back and again put to duty. The regiment soon afterwards received marching orders, and so unruly did the brute become during the march, that it was found necessary to lead it along in front of the squadron. Notwithstanding the utmost caution, the soldier who attended the animal was, on several occasions, severely wounded, and on one occasion all but killed. To avoid further mischief, it was therefore determined that, on arrival at Peterhof, Uteschitelno should, at all hazards, be operated upon.

After being prepared by an appropriate diet and the intestines cleared, the horse was, on November 8th, 1856, thrown down. At an equal distance from the last rib, the transverse processes of the lumbar vertebræ and the anterior spinous process of the ilium on the right side, after the hair had been clipped off, a perpendicular incision, about five inches in length, was made through the common integument, panniculus, external and internal oblique, and transverse abdominal muscles. The peritoneum and the abdominal fat was pierced by the finger ; with the left hand the missing testicle was seized and drawn up to the mouth of the wound. Having separated the epididymis from the spermatic cord and divided the spermatic nerve and duct, the remaining artery and vein, after being twisted once round, were scraped by means of a rough-edged knife until the testicle was released, the cord being then replaced. During the whole of this time, with a view to hinder escape of the intestines and the entrance of air, an assistant held both hands pressed over the wound, which was now sutured and the horse allowed to rise. A febrifuge of calomel and Epsom salts was administered, and nothing but good and fine hay, chilled water and meal, allowed. His head was of course kept tied up. About noon fever set in, but in the evening abated, and gradually subsided. The wound went on well, suppurating nicely, upon which bran and oats in small quantities were added to the above rations. The excessive granulations which grew were easily controlled. On the 10th the stitches were removed, and daily exercise allowed. On November 30th, the horse was discharged from the hospital perfectly well, and subsequently became a very useful member of the regiment.

The success of this operation suggests the idea that strangulated scrotal hernia might possibly be treated in a similar manner, particularly as castration would thereby be avoided.

GROUNDS FOR BELIEVING THAT THE TUBERCULAR DISEASE OF ANIMALS WHICH SUPPLY MILK AND MEAT FOR HUMAN USE, IS COMMUNICATED BY SUCH FOOD TO MAN.*

BY C. CREIGHTON, M.D., CAMBRIDGE.

THE grounds on which the contention of this paper rests, may be summarized as follows :—The tubercular disease of the bovine species has certain well-marked characters which distinguish it. It is for the most part or primarily a disease of the serous membranes. The tubercles on the serous membranes are of large size, round or flat, often in conglomerate masses, joined together by cords, suspended by cords, tending to become hard and firm like shot, apt to occur on the hard margins of organs, *e.g.*, on the margins of the lower lobe of the lung. In their microscopic structure, a certain degree of vascularity, and a large number of giant-cells, are the distinguishing features. The lymphatic glands are almost always invaded by a similar new formation. The lungs very commonly are occupied with

* Abstract of a paper read at the International Medical Congress in August.

nodules of various sizes, which tend to soften in the centre, forming smooth walled vomicæ. The tuberculosis may extend to other organs and parts.

A similar condition of the serous membranes has been observed in a number of tubercular cases in man. The new formations on the serous membranes are more usually soft and membranous, representing the earlier stage of the Pearl-disease; but several cases have been observed in which the nodules have exactly the form and structure of the ordinary bovine Pearl-nodules. An examination of the various diseased organs in these cases, show that the disease is co-ordinate in them all; that there is no primary focus of disease within the body, and that the virus must be referred to some extraneous source on the analogy of syphilis.

In the spread of infective disorders, there is a principle of mimicry; the marked products in the infected body tend to assume the form and structure that characterize the parent disease. It is on the morphological resemblance of the tubercular formations in the human body to the characteristic bovine tubercles, that the argument turns.

REMOVAL OF VESICAL CALCULI IN HORSES BY LITHOTRITY.

In the *Archives Veterinaires* for June 25th, Professor Bassi, of the Turin Veterinary School, relates the history of a case in which he removed an enormous vesical calculus by lithotrity, the volume of the stone being so great that he had no choice between that form of operation and recto-vesical section. Cognizant of the excellent results derived from lithotrity by Professors Bouley and Vachetta, in cases occurring in the horse and mare, Bassi decided in favour of that mode of removal. The animal was a saddle gelding, three-and-a-half years old. Its owner had noticed that since he purchased it, three months previously, the urine was blood-tinted. When not moved about there was no blood, but micturition was a little more frequent than with other horses, and even when exercised in hand at a walking pace for half-an-hour the urine was normal; but after being ridden at a trot for ten minutes that fluid was red and stained the ground like blood. On exploring the bladder *per rectum*, Bassi discovered a very hard ovoid body, a little larger than a turkey's egg, occupying the bladder. The animal was prepared for operation by receiving a moderate diet for three days, and on the morning of May 9th was submitted to operation while fasting. The hind legs having been secured, and a twitch applied to the nose, the penis was withdrawn from the prepuce and tepid water injected into the urethra until a convenient amount of distension was produced, when the end of the penis was firmly tied by a piece of tape to prevent the escape of the fluid. An incision was then made in the perineal *raphe*, at the ischial arch by the direct thrust of a straight bistoury into the distended urethral canal, the cutting edge of the bistoury being upward, the incision being increased towards the anus in withdrawing the knife; the forcible expulsion of the water showed that the canal had been opened. The penis was now untied, and the animal thrown down and secured in the dorsal position, the limbs being sustained in the air by means of a strong bar held by four men, the hind quarters of the animal being a little elevated. An anæsthetic having been administered, the lithotrite of Dr. Guillon was selected as being probably the best to break and extract the calculus. Smeared with olive oil, and introduced through the incision into the bladder by the right hand, while the left was passed into the rectum (previously emptied) in order to fix the calculus while it was being seized, the instrument would not act, even when the male branch was subjected to blows from a hammer, and the

calculus remained whole. Indeed, the force and blows applied so bent and distorted the lithotrite, that it could not be withdrawn from the bladder until filed and cut to pieces by a chisel. This occupied much time, and was certainly not in the patient's favour. Bouley's *tenette broyeuse* was then resorted to, and the stone was rapidly reduced into small fragments; when the long bivalve speculum being introduced into the bladder, which was then forcibly filled with a large quantity of water by means of an ordinary enema syringe, a great quantity of small fragments of the stone were washed out. The whole of the earthy matter removed weighed more than 300 grammes. The perineal wound was not closed by suture. The operation occupied one hour, and when the horse was allowed to get up, it was walked about a few minutes, during which it passed a little urine that had accumulated in the bladder; it was then taken into the stable, well rubbed over the body, and allowed to drink barley gruel, after which it received a dose of sulphate of quinine to prevent traumatic fever; the wound was dressed with carbolised oil, and the inner aspect of the thighs and perineum smeared with simple ointment to protect the skin from excoriation by the urine. The wound was sponged over frequently with ice water. The administration of quinine and the general treatment were continued for a number of days without any unfavourable symptoms supervening. On the fourth day, suppuration having become established in the wound, the ice water was discontinued. The urine flowed partly by the wound, and partly by the urethra, until the twenty-second day, when it entirely passed by the natural channel, the incision having become closed. A small abscess formed subsequently, but this opened spontaneously, and the animal was discharged from hospital. Three months after, Bassi saw it again, and it was then quite well.

In the *American Veterinary Review*, Professor Liautard gives an account of a similar successful case of lithotrity in a horse.

Reviews.

Bovine Tuberculosis in Man. By Charles Creighton, M.D. (London: Macmillan and Co., 1881.)

The great importance of comparative pathology, and the rapidly growing interest manifested towards it, has recently been well demonstrated; and in his carefully-written and well-illustrated monograph, Dr. Creighton has afforded further evidence of the benefits to be derived from its study. Veterinary literature, English and Continental, has now for some years contained records of scientific work, well conceived and ably carried out, with the view of eliciting all the information that could possibly be obtained, clinically, pathologically, and experimentally, regarding the serious bovine disease known as Tuberculosis; and the pages of this journal have contained all the latest researches and observations on the malady. Its transmissibility in the bovine species is undoubted, and its capability of infecting other species is no less a well-established fact—this infection not only occurring accidentally, but also experimentally—by inoculation, the ingestion of tuberculous matter, or the products derived from diseased animals. From all the observations recorded, and the results of the investigations of the most careful veterinarians, the inevitable conclusion is forced upon us that man himself is exposed to infection, and may as readily become its victim as the pig, goat, sheep, or

puppy. And there is some circumstantial evidence which would go to prove this; but as experimentation on our own species dare not be attempted, and is morally to be condemned, the crucial and conclusive test fails us here.

Dr. Creighton, after studying the literature pertaining to Tuberculosis in bovines, and making himself acquainted with the pathological anatomy of the disease, compares it—so far as the morbid products are concerned—to a form of Tuberculosis in mankind, instances of which have been met with by him in Adenbrooke's Hospital, Cambridge. To judge from his descriptions, and the excellent plates which accompany them, there is certainly something more than a superficial resemblance between the lesions of this human disease and those observed in the bovine disorder. More than this it would be imprudent for us to say; and we fancy Dr. Creighton goes no further. As to absolute identity, it will require additional evidence, and that of a clearer and more definite character, before such a conclusion can be arrived at. The clinical ward and *post mortem* room can supply much of this evidence, but that which is most needed is the evidence of transmission from the cow to man. This missing link should be sought for in the antecedents of the persons affected with this form of Tuberculosis, for on its discovery depends the solution of the question as to identity. If we remember aright, Tuberculosis in various phases is a somewhat common disease among cattle in the damper portions of Cambridgeshire and the fenny regions of Lincolnshire. If Dr. Creighton will place himself in communication with some of the veterinary surgeons practising in these counties, it is possible he might be much aided in his work. At any rate, in his book he has not hesitated to seek the assistance of those veterinary writers who have treated of the disease, and by doing so has given proof of his desire to avail himself of every means by which he might strengthen his position. His book marks a distinct advance in comparative pathology, and it should interest veterinary surgeons quite as much as pathologists, physicians, and sanitarians.

BIOLOGICAL ATLAS. A GUIDE TO THE PRACTICAL STUDY OF PLANTS AND ANIMALS. By D. MCALPINE, F.C.S., and A. N. MCALPINE, B. Sc. Edinburgh and London. (W. and A. K. Johnson, 1880.)

This is a most commendable introduction to the study of biology. Illustrated by twenty-four well executed plates, each containing a number of drawings, many of them coloured, and the various parts of all named on the plate, the descriptions, though brief, are remarkably terse and interesting. Commencing with the lowest or most elementary forms of life—yeast and bacteria—reference is made to plant life, then invertebrate creatures, and finally vertebrate animals, concluding with the comparative histology of the frog and man. No better book could be put into the hands of a beginner in the study of plants and animals, and it is equally suitable for those who are advanced students in biology. It should prove attractive, for this reason, to veterinary students, and even to practitioners it will serve to do more than amuse—it will instruct, for it is well up to the biological teaching of the day.

Proceedings of Veterinary Medical Societies, &c.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The forty-fourth meeting of this Association was held in the Exchange Assembly Rooms, Birmingham, on October 28, 1881; Harry Olver, Esq., President, in the chair. There were present:—George Fleming, Esq., F.R.C.V.S., President of the R.C.V.S.; Messrs. H. M. Stanley, Captain Russell, and John Wiggins, Esq., Vice-presidents; F. Blakeway, Esq., Treasurer; also J. M. Parker, H. Gould, D. Aitken, H. J. Cartwright, T. Greaves, J. Martin, R. C. Trigger, R. H. Cartwright, M. Tailby, A. Over, J. Reynolds, E. Meek, E. Beddard, H. Blunt, R. Cole, W. Dale, William Pritchard, L. Tipper, W. Ison, H. D. Pritchard, H. Collett, J. Phillips, A. Green, H. Perrins, and Edward Stanley, Hon. Sec.; Visitors, S. Gamgee, E. Faulkner, J. Allman, T. Chambers, J. Malcolm, H. Davies, H. Jordan, and H. Lepper. Letters were received from the following gentlemen unable to attend:—Professors Robertson and Williams, Messrs. P. Taylor, T. Taylor, A. Taylor, W. Lawton, W. Leather, G. Carless, C. Elam, J. Carless, and J. Wragg.

The minutes of the last meeting were presented and confirmed.

Proposed New Periodical.

The SECRETARY read the following letter:—"Central Veterinary Medical Society, October 7th, 1881.—Dear Sir,—The members of this Society think that full reports of the papers read and discussions held at our Veterinary Medical Societies should be printed in a separate form. With the co-operation of yours and other associations, sufficient literary matter would be forthcoming to keep a weekly record going. To guard against such a periodical becoming the organ of a clique, each society's secretary would correct his own proofs. A page for correspondence, and one for notes of interest, would be all the matter allowed, save that forwarded by secretaries of societies. If we all co-operate, the cost would be to each society a sum equal to sixpence per week for each of its members. For that each would receive free per post a weekly copy of the record. What are your ideas?—Yours truly,

"W. HUNTING."

The SECRETARY replied as follows:—

"Warwick, 12th October, 1881.—Sir,—The Midland Counties Veterinary Medical Association will hold a meeting shortly, when I shall have the pleasure of placing your letter of the 7th inst. before them.—Yours, etc.,

"EDWARD STANLEY."

The CHAIRMAN said that for his own part he did not think the proposed paper would answer. They had already, in the VETERINARY JOURNAL, full reports of their meetings, and unless they had paid secretaries to carry out the work suggested, he believed they would find some difficulty in bringing forward a weekly periodical of veterinary science.

Mr. WIGGINS proposed that the subject be not entertained, and Mr. GREAVES seconded the proposition.

Mr. PRITCHARD thought it was a matter that required consideration. He moved as an amendment, "That the consideration of the contents of this letter be deferred until our next meeting."

Mr. TRIGGER seconded the amendment, which was carried.

Election of Honorary Associate.

The CHAIRMAN said: The next business was the proposed election of George Fleming, Esq., as an honorary associate. Mr. Fleming was well

known for the interest he took in veterinary science, and was the able President of the Royal College of Veterinary Surgeons. He had, therefore, great pleasure in proposing that Mr. Fleming be an honorary associate of the Midland Counties Association.

Mr. BLAKEWAY seconded the proposition, saying they all appreciated the services Mr. Fleming had given in the interest of science. The proposition was unanimously carried.

Mr. FLEMING, in returning thanks for his election, said that if there was anything that rewarded a man for what he had done, and was likely to stimulate him to further exertion, it was the good-will, respect, and testimony and esteem of his fellow-men. What he had done was not for himself alone, but for them all. He took the high compliment they had paid him as an earnest of their appreciation of the labours he had undertaken on behalf of veterinary science in this country. He should always esteem it a high honour to come amongst them, and he had great pleasure in being a member of their association. (Applause.)

Pathological Specimens.

Mr. G. FLEMING said: A very important portion of the work of that meeting was the explanation of pathological specimens. Upon the objects before them remarks might be made, and from the illustrations valuable information might be derived by the other members. He had brought two specimens, one of which had already been shown at several meetings, and it was one of the most extraordinary he had ever seen. It was a calculus taken from a mare still alive and doing duty in a cavalry regiment. The calculus was expelled from the bladder of the mare while travelling from York to Aldershot. She was ill the whole of the way, and one evening the man in the stable waiting upon her found the calculus behind her after she had been straining violently. He had never heard of such a large calculus being expelled from the bladder before. The other specimen should have been exhibited by his friend Mr. Ison.*

The CHAIRMAN said the nasal polypus was a matter of great interest to them all.

Mr. E. STANLEY: Was there any hæmorrhage?

Mr. FLEMING: At the commencement of the operation a good deal, but none after the horse got up.

Mr. STANLEY: The wire must have gone through the neck of the tumour.

Mr. FLEMING: The tumour was divided in the middle by the wire, but broken at the base by the fingers.

Laryngisimus Paralytica.

Mr. G. FLEMING then read a paper on "Laryngisimus Paralytica' (Roaring).†

The CHAIRMAN said they were all much obliged to Mr. Fleming for his paper on the subject of Roaring. He had brought before them a good deal that was new, and a good deal worthy their consideration and trial. One matter which he believed was generally considered amongst them as being almost a certainty had received a rude shock from the paper. They had thought in this country that Roaring had been one of hereditary taint; but Mr. Fleming, in his paper, showed that Influenza and Strangles, and other diseases of the glands, had much to do with the disease of Roaring, in producing compression of the recurrent nerve. If this disease was not, as it was generally supposed to have been, hereditary, why was it that certain families did contract the disease from generation to generation?

* See description of this case—Osseous Polypus—in first part of Journal.

† Owing to the pressure on our space, this paper is held over until next month.

Mr. PRITCHARD did not agree with one or two points in the paper. He hardly fell in with the view that Roaring was created by the vocal cord being drawn or forced into the centre of the passage. He had a different opinion, and had frequently ventilated it, but he would now proceed to do so again. There could be no doubt that ninety-nine cases out of a hundred of Roaring were produced by paralytic condition of the recurrent nerves. There could be no doubt either, as a consequence of the paralytic condition of one of those nerves, loss of function, as well as loss of substance of the dilator muscles of the larynx took place. As a consequence of the paralytic condition of the nerve, they got a wasting condition of the dilating muscles. When that existed, he was of opinion the muscles on the other side of the larynx overpowered the muscles on the left, and as a consequence, the arytænoid cartilage, and not the vocal cord, was drawn across the opening. He believed exactly the same thing took place when they got a paralysed condition of the recurrent nerve during the act of inspiration. While an animal was in a quiescent state, respiration was going on quietly, and the cartilage was not drawn across the opening. A similar arrangement existed in the nostril of a horse standing perfectly quiet, but in excited respiration there was an extension of the opening. As soon as respiration became excited the sound muscles on the right side of the larynx drew the cartilage, and not the vocal cord, across the opening, and in that way sound was created. He was of opinion the cause of the left recurrent nerve becoming affected more frequently than the right, was due to excessive interchange of nerve-fibres between the left recurrent nerve and the nerves of the heart itself. He looked upon Roaring as primarily the pathological condition of the heart, rather than interference of the nerve by the lymphatic gland. The interchange of fibres was very considerable, and he was rather inclined to think in many instances it was produced in young thoroughbreds, by excessive excitation of the heart's action.

Mr. GREAVES did not follow Mr. Fleming nor Mr. Pritchard in the theory of this disease. The problems were not clearly solved yet, and they would take some time before they were clearly solved. It was well known that colts were found to be roarers when there was no excitation of the heart Mr. Pritchard spoke about. Many colts that had never had a halter upon them were roarers. How was that accounted for, if it were not hereditary? The fact of colts being roarers might be traced in some instances from the time they were born. That was either congenital or hereditary. As regarded the treatment, he had not tried electricity. It might be there was in that a source of power that would be of service to them when further tried. He hoped it would be so. He had had some experience in regard to acute roarers, and in those cases the muscles had not degenerated.

Mr. CARTWRIGHT said his views corresponded with Mr. Pritchard's as to causes. Roaring was traceable to hereditary causes in a great many cases as regarded thoroughbred stock.

Mr. PARKER was inclined to the view taken by Mr. Pritchard in regard to this malady. If Roaring was often the result of disease of the lymphatic glands, how was it cart-horses, which were more prone to that disease, did not become roarers more frequently than thoroughbreds? He thought Roaring was more often hereditary than anything else. As to treatment, he had tried everything except electricity, and he would try that.

Mr. MARTIN knew of hundreds of cases where there was Roaring before the animals were put to work. He had been in the habit of using electricity for roarers, and the results had been very good.

Mr. BLUNT considered Roaring to be often hereditary.

Captain RUSSELL never saw but one roarer while he was in India, and that was an English horse.

Mr. E. STANLEY said half-bred animals and Welsh horses were very seldom roarers, as compared with horses of other classes. In India horses were not roarers so frequently as in England, but that was in a great measure owing, he believed, to the natural formation of the horses, they being small in size. Many of the imported Australian horses, more nearly the size of our own home-bred troop-horses, were roarers, and we found a considerable number of Indian stud-bred horses, crossed with English sires, also roarers.

Mr. PERRINS said it was a most important question to decide whether Roaring was hereditary or not. He should like to ask Mr. Fleming what was his opinion with respect to breeding, whether he thought it was more in the mare than the horse?

Mr. H. M. STANLEY asked whether grunters were unsound when they did not make any roaring noise on exertion.

Mr. FLEMING, in reply, said that in at least ninety-five per cent. of cases of Roaring, the muscles on the left side of the larynx were chiefly affected. It was rare they found the muscles affected on the right side as well as the left. He could not agree that the action of the heart had anything to do with the production of Roaring in all or in many cases. It might be in special cases. If the loss of function of the nerve depended upon the action of the heart, they would expect to find the malady always existing in horses severely exercised, whereas almost always the contrary was the case. It was well known that horses would remain perfectly free from Roaring for a long time, and until they were attacked by Influenza, Pneumonia, Bronchitis, or Strangles. He thought, if attention was directed to the matter, those who had an opportunity of examining the lymphatic glands in the neighbourhood of the left recurrent nerve would be able to substantiate wholly or in part what he had advanced as to the true cause of Roaring. There were facts tending to show that the disease was hereditary, and also facts against this notion. If the disease were hereditary so far as the left nerve is concerned, surely it would be so in the right nerve! The fact remained, that whether horses were severely exerted or not, they would have Roaring produced in them, and they all knew how frequently Roaring followed pulmonary and bronchial effections. Amongst the diseases which produced Roaring, he knew of none so effectual as Strangles. Roaring was extremely rare in hot countries, and he was led to the conclusion that our stabling of horses—keeping them at a high temperature in foul air—and also our unfavourable climate, conduced to its production. He did not think "grunting" had a direct relation to Roaring, or that it was a sign of unsoundness in the sense that Roaring was. He was of opinion that it was not advisable to breed from roarers.

Several members considered grunting a symptom of Roaring, and as such should regard it with grave suspicion.

On the proposition of Mr. TIPPER, seconded by Mr. GREAVES, Mr. Fleming was awarded a very cordial vote of thanks.

Mr. SAMPSON GAMGEE made some very interesting and instructive remarks on the treatment of wounds, and received a vote of thanks, on the motion of Mr. RUSSELL, seconded by Mr. BLAKEWAY.

Mr. H. M. STANLEY proposed a vote of thanks to the President, which was seconded by Mr. S. GAMGEE.

It was decided to hold the next meeting at Derby.

EDWARD STANLEY, *Hon. Sec.*, Warwick.

SOUTHERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 373.)

IT has frequently happened that a cow-keeper's stock is perfectly healthy until he buys a cow from a dealer, and in the course of a month or so Pleuro-

pneumonia appears in the new purchase, and the others are soon involved. One of many occurrences of this nature I will relate. A Mr. Walker, living in my locality, had twenty-eight fine cows at his farm—an isolated place, where no other cows could by any possibility get near them; there had been no contagious disease on this farm. He bought a cow from a cattle dealer, and in about a fortnight this animal manifested symptoms of Pleuro-pneumonia and was killed at once. But the contagion had fixed itself among his stock, and he lost no fewer than twenty-two cows. No doubt the disease was in the incubative stage in the newly-purchased cow, and it had come from an infected stock; but being purchased by the dealer at a market, it was found impossible to trace its origin further. This is only one of many instances I could relate, which prove conclusively to my mind the contagiousness of the disease.

Well, on the other hand, some members of the profession publicly maintain that this disease never arises spontaneously in England. But I know a farm in an out-of-the-way place, not near any high road, where the farmer bred his own Alderney cows, and from the most careful inquiry I learned that no new animal had come into the place, yet Pleuro-pneumonia broke out here, and this outbreak leads me to believe that in some cases it is spontaneously generated.

As we are not exclusively considering Pleuro-pneumonia, I do not think it necessary to describe its pathological anatomy; but I may in passing refer to the case tried at Durham last October, and reported in the VETERINARY JOURNAL, in which one of the witnesses asserted that in this disease only one lung, or a portion of one lung, was invariably affected. My experience is that it generally affects one side, but occasionally involves both sides. I have noticed particularly since the trial alluded to was published, and may now assert that in ten per cent. of the cases both sides are involved.

In enumerating some of the symptoms of the much-neglected disease —Tuberculosis or bovine Phthisis—it may be remarked that our talented President has written so much on the subject that he has quite exhausted it; so that it would be little else than presumptuous for us to attempt more than just draw attention to it, and make ourselves thoroughly acquainted with the symptoms, so as to be able to distinguish between it and Pleuro-pneumonia. Consequently, my observations will be confined to the symptoms exhibited when the tubercles have formed in the lungs, which, so far as my experience goes, are generally their seat, though they may be developed in other parts of the body. My attention was first attracted to this disease on reading about it in that useful work written by our President, and which every member of the profession should possess. I allude to "Veterinary Sanitary Science and Police."

The owner of a cow at first notices it to be poorly, but does not think it sufficiently amiss to send for a veterinary surgeon. There is a little dulness and disinclination to move; it does not feed so well as usual, and the appetite is fickle, and as the disease advances it becomes more capricious. The visible mucous membranes are pale at this stage. Then follows the frequent hacking cough, which is stronger than that of Pleuro-pneumonia, and is not so painful and thin. The secretion of milk is not so much affected in quantity at first, but this constant distressing cough seems to wear the animal out, and produces a degree of lassitude similar to that of Phthisis in mankind. In Pleuro-pneumonia, it may be noted that there is indigestion—the rumen containing a quantity of hard food; and there is this also in Tuberculosis, and in each disease, from the sympathy existing between the lungs and stomach, through both being supplied by the pneumogastric nerve, there is a grunting sound, which leads to Tuberculosis being often

mistaken for Pleuro-pneumonia. But in the former the grunt is not apparently so painful or so involuntary as in Pleuro-pneumonia, and is more of a moan; though nothing but experience and observation will enable any person to distinguish between them. The constitution soon becomes affected, and Hectic Fever sets in. There is a tight, unhealthy appearance of the skin, with the hair dry and erect. In the early stage there is constipation, but towards the end diarrhœa sets in, and with it great prostration. Percussion on the ribs and back causes pain, as it does in Pleuro-pneumonia. So far as my experience goes, auscultation does not assist us much in distinguishing between the two diseases, neither does the thermometer, as it rises to about the same degree in both—from 103° to 106°, or thereabouts. As the malady advances, there is an exacerbation of the symptoms. The last cases I saw in the final stages were two cows purchased from a dealer, and supposed to be suffering from Pleuro-pneumonia. I was called in as inspector, and found both animals lying on their sternum, and their head protruded, nostrils dilated, and discharging a muco-purulent frothy matter from these openings as well as the mouth; the nose was hot and dry, and crusted with the discharge; the ears drooped as in the Cattle Plague, and the cough was very troublesome. There was complete inappetence and loss of milk, and profuse and passive diarrhœa, the fluid being dark-coloured and fœtid. They died in a few days, and doubtless they were both diseased when purchased, as they were only in the possession of the farmer one week. Cows affected with Tuberculosis can be sold with impunity at any market, and neither veterinary inspector or policeman has any power to prevent their movement. It should be included in the Contagious Diseases (Animals) Act.

I am not pretending to read a paper on Tuberculosis, but it may be well, and especially with regard to discussion, to refer to its transmissibility or contagiousness. I have not had an opportunity of clearly proving this attribute of the disease, although I have often seen several cows in the same stock affected; but there seems to be as much doubt on this point as with regard to the communicability of Phthisis in mankind. Mr. Fleming, in his "Sanitary Science and Police," does not write from his own experience, but quotes the results of observations and experiments of several continental veterinarians, who speak with some degree of certainty as to its infectiousness and contagiousness; though others have questioned the accuracy of these observations and experiments. Therefore, I do not think we are able to decide the matter at present; but with further and faithfully recorded observations we may at some future time be able to assist Government in taking action with regard to the disease. In the VETERINARY JOURNAL for last February, Mr. Fleming gives some very interesting and instructive experiments by the German veterinary surgeon Albert, which almost conclusively prove that this malady can be, and is, communicable by contagion. But what is more important for our future investigation is its transmissibility from the cow to man, and especially as the flesh and milk are not in any way prohibited from being sold as food. The hereditary tendency to the disorder has been abundantly demonstrated, and all who have written on the disease agree upon this point. It has been asserted that the milk from tuberculous cows given to pigs has given rise to the disease in them. Therefore, to say the least of it, such milk must be injurious to the public health, even if it does not produce Phthisis, as some authorities more than suspect.

With regard to distinguishing between Tuberculosis and Contagious Pleuro-pneumonia, it must be remembered that the first-named, like human Phthisis, may remain a long time in a latent state, and until some decided symptoms become manifest the presence of the disease cannot be decided

upon. In the human malady, we see consumptive persons looking pale and gradually wasting away, and only time is required to develop the prominent and unmistakable symptoms of the fatal malady. Last month I had a cow killed at an advanced stage of Tuberculosis; it had been affected for six months, but showed no other symptoms than wasting away until it became a perfect skeleton. It always had a capricious appetite, and there was no coughing or grunting. I diagnosed it as a case of Tuberculosis, simply because I had witnessed similar cases. This animal was standing beside other two cows in a shed, and had been turned out to graze along with them all the summer. These remain healthy at present. I exhibit a portion of the lung of the diseased animal, to show the extent of the lesions. Another portion of a lung is also laid out for inspection. It was obtained from a fat bull which gradually began to waste, and was killed for food in ten days after his wasting first began. It was incessantly coughing, and any practitioner who heard it could not mistake the disease for Pleuro-pneumonia.

I mention this instance more particularly to show the difficulty a veterinary surgeon is placed in, as if he thinks there is danger in consuming such flesh, and insists upon the carcase being buried instead of being consumed by people, his services are not likely again to be called into requisition by the owner. The carcase of this bull realised £18, and it is not in a farmer's nature, or in human nature in any capacity, to lose that product unless the law interferes. Therefore, I think we shall be unanimous in our opinion that this scourge should be included in the Act. The owners of such diseased animals should be compensated, and the carcase buried. I may note that the bull in question was standing among a lot of cows, and they are all apparently healthy at the present time.

In my experience there is considerable difficulty in distinguishing between Tuberculosis and Pleuro-pneumonia in their early stage, as both have similar symptoms, and indeed in cows suffering from diseases of the digestive organs, or in those which had swallowed a bodkin, needle, or piece of wire, I have noticed symptoms not very unlike those of these maladies. But when they have advanced to another stage, the two are easily distinguished from each other. The eye in Pleuro-pneumonia has a peculiar indescribable expression—a glassy appearance, as if of pain and distress; there is also the dry, husky, short and painful cough, that no experienced veterinary surgeon can mistake, with the involuntary grunt at nearly every expiration. Tuberculosis is less rapid in its course, and continues for a long period; there is wasting without any very decided or reliable symptoms being developed. There is no grunt, but rather a moan; the cough is more frequent, and is of a harsh, hard, phthisical character, which much distresses and exhausts the animal. Of course, in both maladies there is emaciation, prostration, and diarrhœa towards their termination.

A most important question for solution is whether the flesh of animals affected with Pleuro-pneumonia and Tuberculosis is injurious to persons who consume it. There can be no doubt that the veterinary surgeon who sees and treats diseased animals from beginning to end of their illness, examines their carcases to ascertain the ravages of disease, knows where and how the flesh is disposed of and the appearances it presents, possesses facilities which are not accessible to any other person, to enable him to give a reliable opinion on this highly important sanitary question. There have been, and are now, many conflicting opinions among medical men—human and veterinary—as to whether partaking of the flesh of an animal which has suffered from Pleuro-pneumonia is hurtful to people; and this conflict among authorities very often places magistrates and other local authorities in a very embarrassing position, when they have to decide whether to order the carcase of such an animal to be buried, or to be disposed of for human consumption.

They naturally look to the veterinary inspector for a trustworthy opinion, and he has generally to assume the responsibility of advising. This renders it all the more important that we should discuss the question from time to time, in order that the views on the matter may be clear, exact, and unanimous.

In the Contagious Diseases (Animals) Act, it is specified that "every person having in his possession a head of cattle affected with Pleuro-pneumonia must, with all practicable speed, give notice of the fact of the animal being so affected to a constable." If he fails to do so, the compensation to which he would otherwise be entitled is forfeited, and he is liable to be summoned before a magistrate and fined for not giving such notice. This law is judicious from a sanitary point of view, because we, as a rule, invariably have an opportunity of seeing the animal in the earlier stage of the disease, and when the flesh looks healthy. Mr. Fleming very correctly describes the appearance of healthy flesh, in his work on "Sanitary Science and Police," as firm and elastic. It cuts well, has an uniform red tint, and the interstitial connective tissue is rather dry than moist. When newly cut there exudes from it, especially on slight pressure, a highly-coloured, slightly acid juice, possessing an agreeable odour, which is most marked, perhaps, in cooking. It is necessary that we should make ourselves practically acquainted with the appearance of healthy meat. In the latter stages of Pleuro-pneumonia, we find the flesh moist, soft, and flabby, and full of serum. This is, no doubt, deficient in nutritious properties, and in cooking it shrivels and wastes, instead of increasing in bulk. In warm weather it soon decomposes. During the incubative period of the malady, while the animal is apparently in good health and feeding well, the flesh cannot be in any way objectionable. When the disease makes itself manifest, then notice is given to the inspector, and the animal is at once slaughtered. From the appearance of the flesh at this stage, I contend that it is quite fit for food; though some persons maintain that the disease, being so insidious, is already far advanced before it is detected. We often find that in those cases in which the symptoms are least marked, the lesions in the lungs are most advanced, and *vice versâ*, a circumstance difficult to account for.

If we consider this a blood disease, and admit that the germs are conveyed, through the medium of the blood, to all parts of the body, in my opinion the process of cooking must destroy the vitality of these germs. No writer, to my knowledge, has ever given any reliable facts as to the injury produced by such flesh to those who ate it; but we have abundant evidence that this flesh has for years been consumed with absolute impunity. In the VETERINARY JOURNAL for last January, reference is made to the statement of a M. Loiset, veterinary inspector at Lille, France, who reports that the flesh of 18,000 cattle affected with this disease was eaten without giving rise to any complaint of any kind. The subject was discussed at the meeting of the British Medical Association at Cambridge last November, but I could not find that any one present gave any reliable evidence as to the hurtfulness of this flesh.

I hold three appointments as inspector under three different local authorities, and my districts have been hotbeds for Pleuro-pneumonia. I have allowed diseased animals to be slaughtered, and their flesh issued as human food on my own responsibility. I have inspected every carcase, and know for a fact that they have all gone to feed one body of men, and I have watched and inquired whether these suffered at all. They have remained unaffected by any disease which could be attributed to their animal food. One butcher I know gives his servants a piece of meat every Saturday, and they invariably ask for a piece of cow's flesh they know has been slaughtered while suffering from Pleuro-pneumonia, simply because they get a larger piece.

It has been stated that the presence of so much pus in the cow's chest must necessarily injure the flesh. Generally speaking, there is an absence of pus, and simply consolidation of lung and effusion of serum, the lesions being confined to the chest. Besides, if there was absorption of pus we should have Pyæmia and all its concomitant symptoms. If the malady ran on to the later stages, and the animal was emaciated, I should decidedly approve of the carcase being buried. I believe a Commission is to be appointed by Government to inquire into this important subject.

With reference to the Orders in Council on slaughtering cattle, it may be remarked that some veterinary surgeons have expressed their opinions in very decided language, to the effect that when Pleuro-pneumonia breaks out in a shed or premises all the cows which have been in contact with the diseased animal should be killed. This wholesale slaughter, however, requires a considerable amount of judgment. If a cowkeeper, for instance, has fifty cows, and one a few weeks after purchase shows symptoms of the disease, not only had this to be killed, but all the others also; and though the owner may be compensated to their full value, yet the affair may be ruinous to him, through losing the trade it may have taken years to establish. I think, if we keep a vigilant look-out upon the men who deal in these cattle, who buy from cow-keepers, who sell when they find disease on their premises, and before they give notice of its existence, and frequently after the fifty-six days fixed by Order of Council as the limit of latency, it would be extremely beneficial, for, in many instances, the animals are sold in different parts of the country, and so the contagion is disseminated. I think this has been pretty clearly demonstrated by the effect of the last restrictions placed on the movement of cattle and closing the markets. For years previously I always had outbreaks occurring in one or other of my districts, but since these restrictions have been rigidly enforced I have only had one case.

Are the flesh and milk of tuberculous animals fit for human food, or are they capable of communicating disease to those who consume them? I wish to condense this subject as much as I consistently can, in order to make my paper as concise as possible. Therefore I shall omit the detailed statements of all those veterinarians and others who have made experiments to prove the communicability of the disease from the bovine to other species. Rightly or wrongly, we know it as a fact, that all tuberculous cows go to the butcher, and also that their milk is allowed to be consumed as food. I must confess that I have not had sufficient opportunity of inquiring into this most serious question—affecting, as it does, the health, even the life of mankind; nor have I been able to devote sufficient time to trace whether any pernicious effects have followed the use of these articles. But it behoves us as veterinary surgeons to thoroughly investigate and understand the malady, as our professional knowledge and opportunities give us facilities which other scientific men do not enjoy; and if we avail ourselves of these, we may be able not only to throw much light on many obscure points with regard to the disease, but guard the public against what, there is much reason to fear, is a grave danger, by preventing poisonous food being sent into the market.

Several continental veterinarians have spared no pains in making experiments, and have conclusively proved that the milk of tuberculous cows is capable of transmitting the disease, not only to their offspring, but also to other species. We must, therefore, infer that it contains the germs or virus of tubercle. It has also been shown that the milk from tuberculous cows produces the disease in pigs fed upon it; and it would seem that cooking does not destroy the virus. One continental veterinarian mentions several instances in which young children who had received such milk died, and they were found to be affected with Tuberculosis; and English veterinarians assert that they have traced the occurrence of Phthisis in families to

partaking of such milk. There is some difference of opinion with regard to the relationship between this malady and Pleuro-pneumonia. There can be no doubt that Tuberculosis is both hereditary and chronic, which is not the case with Pleuro-pneumonia. We find the tuberculous matter in different parts of the body, sometimes even among the muscles. Mr. Fleming, in his valuable and instructive pamphlet on Tuberculosis, has shown us that it is a truly inoculable disease, and that it can also be produced by the ingestion of tuberculous matter. With these facts before us, there can scarcely be two opinions that the flesh and milk of tuberculous animals is unwholesome, and as cooking does not destroy the virus, these should not be permitted to be used as food, as they may lead to the production of Phthisis. Surely it is high time that the danger incurred by allowing such food to be sold should be recognised by the Government, and steps taken to limit the spread of the disease, if not to altogether extinguish it. So far as the public health is concerned, it is the most serious malady affecting cattle, and should no longer be neglected.

The PRESIDENT complimented Mr. Martin on his well-written paper on a subject which was of the greatest importance, not only to themselves as a profession, or to the medical profession, but to the public. They were all in a position, and especially those who practised in the country, to make themselves acquainted with both maladies. Pleuro-pneumonia was decreasing in the country; Tuberculosis, on the other hand, was gaining ground, not only in England, but in many other countries. In Mexico especially it had proved very fatal among cattle. It had come to be a grave question whether man himself was not in danger by the existence of the malady. There was no class of men better fitted or able than those he saw before him to trace out its nature—to say how far it might be infectious in animals suffering from it, and how far it was transmissible to healthy cattle, and from cattle to mankind. Their Secretary had done well in introducing the subject to their notice, because he (the President) maintained they were in a better position to express views with regard to it than any one else. He believed it was one that the country would expect them to share in studying and illustrating, and he thought at those meetings a large amount of good might be derived in discussing it.

An interesting and profitable discussion followed, in which the speakers were Capt. Russell, Mr. Garside, Mr. Greaves, Mr. Edgar, Mr. Burt, Mr. Farrance, Mr. Stock, the Chairman, and others.

The following resolutions were subsequently adopted:—1. "That the flesh of animals which have been affected with Contagious Pleuro-pneumonia in the early stage is not unfit for human food." 2. "That such flesh, in the latter stages, is not fit for food." 3. "That Tuberculosis should be brought within the operation of the Contagious Diseases (Animals) Act." 4. "That the flesh and milk of tuberculous animals should not be allowed to be consumed as food." 5. "That a committee be formed of members of this Association to draw out a resolution, to be forwarded to the other associations in the United Kingdom, to obtain their opinion and concurrence in petitioning the Government to include tuberculous diseases in the Contagious Diseases (Animals) Act."

THE VETERINARY MEDICAL ACT.

The PRESIDENT, in explaining the provisions of this Bill, alluded to the threatened difficulties which confronted the efforts put forth to pass it. There were no fewer than five motions on the Parliamentary paper at one time to throw out the Bill altogether, whilst of amendments instituted to defeat the primary objects of the measure there were no end. Mr. Mundella, the Vice-President of the Council, confessed to him that unless he could remove the

opposition raised to the Bill outside, their efforts to pass it would be entirely fruitless. How the motions were got off the paper, the amendments modified or withdrawn altogether, and how the Bill finally passed, would be a story almost too wearisomely long to listen to, nor would it be very agreeable. The Bill, as they all knew, had become law, and it came out of the House of Commons in the same condition almost as that in which it entered it. (Applause.) That was a result he certainly did not anticipate. He could not think the Commons would ever allow a Bill to pass containing a five-years' retrospective clause. It was an occurrence almost unparalleled in the history of Acts of Parliament for a Bill to operate five years backwards. Mr. Mundella, by great judgment and a large amount of strategy, managed to get the Bill through almost on the last day of the business of the Parliament. It was now inscribed in the statute-book, and it was one of the greatest steps the profession had ever taken in this country. They stood in a position now equal to that of any other profession. They had got a better Act of Parliament than the medical men, and they had, by 1,000 per cent., got a better one than the dentists two years ago. (Applause.) There had been some complaint in some quarters by unreasonable or unthinking men that the Act put unqualified men on the same footing as the qualified. Nothing of the sort; if anything, the unqualified men were shown up to the world, and their condition exposed. They were placed in a separate list or register, as unqualified practitioners. In the course of two years no man could assume a title likely to mislead the public. It was the death-blow to imposition and quackery, and it was a new birth for their own profession. (Loud applause.) He did not think any of them who studied the Act would find any fault with it. They stood on a new footing; they were a profession recognised by Act of Parliament and by the country. Having a new position they had also a new responsibility, and that was, to extend and raise the science to which they had devoted their lives. (Loud applause.)

Mr. GREAVES said the exertions used on their behalf by the present President had been productive of more good to the profession than the efforts of all his twenty-six predecessors put together. He had had some little experience of Mr. Fleming's earnestness and desire for serving their profession, and if there was one man who deserved credit for his actions it was he. He (the speaker) was only sorry any member of the profession should have opposed him. (Hear, hear.) They had all felt the injurious effects of the system which enabled men who had never spent a shilling on their education, nor studied a single hour, to practise their profession. Such men could take the means of living out of their hands, notwithstanding that they had devoted years of toil, and gone to considerable expense, in fitting themselves for the work they had to do. (Hear, hear.) They had been robbed and robbed, and society also had been robbed. (Hear.) Their President had determined to put an end to it, and they all rejoiced that his aims had been carried into practical effect. For his great energy shown in preparing and forcing on the Bill he was entitled to their warmest thanks; but it was not simply in regard to that matter that he had endeared himself to all honest members of the profession. His labours had ever been made in their behalf, and his efforts throughout had been directed to setting them upon a better footing. (Applause.) He begged to propose that the hearty thanks of the meeting be accorded to Mr. Fleming. (Renewed applause.)

Mr. MARTIN had great pleasure in seconding the proposal. He had known Mr. Fleming many years, and he did not think any one could have worked so assiduously and unselfishly; because, considering his position, he was quite independent of the profession. But while not seeking to improve his own position, he had undoubtedly promoted their interests, and they must congratulate themselves upon having such a man associated with them, who

had produced so much valuable literature for them, and had striven to elevate their position. His indomitable perseverance, his industry, learning, and kindly manner had combined to produce the results over which they were now exulting. In everything he set himself to do he invariably succeeded. He was entitled to their best thanks as one of the best men they ever had in their profession, and it was a great blessing that his lot had been cast in with theirs. (Applause.)

The vote was carried by acclamation.

The PRESIDENT, who, on rising, was greeted with applause, said he had been trying to avoid all this eulogium. He took all their compliments and remarks in the very best spirit, and with the greatest amount of gratitude. He did not think there was anything to which he was more passionately attached than the profession with which they all loved to be connected, and he was desirous, therefore, of raising it to the utmost of his ability. He had had the opportunity, the desire, and to some extent the ability and strength, to further its interests, and he had no hesitation in saying it was worthy of the highest intellect of man. The animals they had taken under their charge required certainly the utmost care and consideration. He looked upon an animal that lived for us and toiled for us as deserving of as kindly and skilful treatment as a human being. The young members of the profession would stand on far different ground to that their predecessors had occupied. The Act of Parliament, in passing which he had been personally instrumental, would place them on a footing their elder brethren could not have dreamed of. He did not feel in the least elated at the success of what he had undertaken, but he did feel very grateful that he had been favoured with health, strength, and a resolute will to assist in elevating their noble calling. (Applause.) He looked upon the Veterinary Surgeons' Act as the crowning effort of a life devoted to the profession. For the last quarter of a century he had been aiming at the very object which had now been so completely and satisfactorily attained. He saw during that long period that unless they could show the public some reason for obtaining protection, show them that theirs was a learned and useful profession, and one to a large extent to be supported, they would never get that protection, and that feeling of honour and respect shown them, so essential and so desirable for every profession if it was to thrive. (Applause.) There were many things in the Act beyond mere protection, that would go a long way to put them on a splendid footing. The benefits it conferred were far more numerous and valuable than he thought they would get. It seemed to him there was nothing more they could ask for. All the requirements of their profession were supplied. Their list of qualified members would increase year by year, whilst the names on the unqualified register would gradually dwindle away. Not a very long time would elapse before there was not one unqualified man practising veterinary medicine in these kingdoms. (Applause.)

Mr. MARTIN adverted to the valuable time sacrificed by the President in his exertions in his efforts to secure the enactment of the Bill, and pointed out that the Act would not cost the profession one penny. (Great applause.)

The PRESIDENT explained the different clauses in the Act, and how it was proposed to carry them into effect.

Mr. STOCK suggested that regulations with regard to professional etiquette should be drawn up, but

The PRESIDENT was afraid they would have some difficulty in enforcing rules of that nature, which, he also thought, it was scarcely possible to frame.

The subject dropped, and the meeting shortly afterwards terminated.

The members subsequently dined together at the Pavilion.

YORKSHIRE VETERINARY SOCIETY.

THE concluding quarterly meeting for the year was held at the Queen's Hotel, Leeds, on 27th October; the President, Mr. J. H. Ferguson, in the chair. The following members were also present; viz., Messrs. Naylor, Jas. Freeman, Anderton, J. S. Carter, G. Schofield, Peter Walker, Deighton, Geo. Carter, J. Tatam, B. Smith, T. C. Toop, and the Secretary. Messrs. Fraser, Greenhalgh, and C. Secker, jun., were present as visitors. Apologies for non-attendance were received from Messrs. Dray, Greaves, Danby, Snarry, Fallding, and J. and J. Freeman. The minutes of the previous meeting were read and confirmed. Mr. T. C. Toop, M.R.C.V.S., was unanimously elected a member.

Mr. BENJ. SMITH complained that his fees as an inspector had been reduced.

Messrs. NAYLOR, SCHOFIELD, and CARTER stated that no alteration had been made in their fees, and therefore the matter must be attributed to the parsimony of the magistrates in Mr. Smith's division.

The PRESIDENT made a few remarks upon the altered state of the profession, upon entering upon the new life given to it by the passing of the Veterinary Medical Act.

Mr. WALKER related the particulars of a difficult case of parturition in the cow, and exhibited a photograph of the calf.

In consequence of Mr. Nettleton being unable to fulfil his promise of reading a paper for discussion at this meeting, owing to ill-health, Mr. TOOP kindly volunteered an essay upon "Charbon, or Anthrax." The essayist reviewed this fatal affection in a highly scientific discourse, and upon the conclusion of the essay it was unanimously resolved that the paper be forwarded to the editor of the VETERINARY JOURNAL for publication.* A vote of thanks, moved by Mr. Naylor and seconded by Mr. Freeman, was unanimously awarded.

Mr. NAYLOR did not agree with some of the contents of the paper. He invariably found his patients dead upon his arrival, thus affording little or no time for remedial measures to be adopted; had never seen an Anthrax patient exhibit signs of spasm; upon some occasions had not been able to detect the presence of Bacilli.

Mr. FREEMAN was of opinion that Anthrax may be produced by other means than contagion; had invariably found animals living on nutritious food to be affected with Anthrax; had seen pigs affected with Diphtheria after eating the products of Anthrax.

Mr. G. SCHOFIELD did not think Anthrax so contagious as the author asserted; was of the opinion that the disease may be produced by decomposing organic matter; recommended setoning, with the exhibition of saline purgatives, as preventive treatment.

Mr. GEO. CARTER had seen animals, after eating Anthrax products, affected with boils, along with effusion of yellow gelatinous matter; had seen a horse die in a very few hours after eating the hay (taken away) left by a cow stricken with Anthrax, the horse showing symptoms of acute Laryngitis.

Mr. TATAM said that he had seen large outbreaks of Anthrax, under the name of "Loodiana Fever," in India, where it could not possibly arise from decomposing animal matter, but was supposed to be caused by miasmatic influences.

Mr. TOOP, in replying, related some special outbreaks of Anthrax, and had seen preventive treatment highly efficacious. The *Bacillus Anthracis* can

* This essay is unavoidably held over until next month.

only arise from Bacilli, and must be introduced into the system of an animal. He said there could be no doubt respecting the contagiousness of Anthrax.

The TREASURER (Mr. Ferguson) read the financial statement for the year, showing a balance in hand of £111 3s. 10d.

The election of officers for 1882 resulted as follows :—Mr. Joseph Freeman, Keyingham, the President ; Messrs. Ferguson, ex-President, James Freeman, and Deighton, Vice-Presidents ; Mr. Broughton, Hon. Secretary ; Mr. Ferguson, Hon. Treasurer.

A unanimous vote of thanks was awarded to Mr. Ferguson for his efficient conduct as President during the year.

Refreshments, by invitation of the Leeds members, were provided.

W. BROUGHTON, *Secretary.*

SCOTTISH CENTRAL VETERINARY MEDICAL SOCIETY.

A PRELIMINARY meeting of members of the veterinary profession located in Dundee and surrounding district was held at the Crown Hotel, Dundee, on 20th September, 1881, at which the following gentlemen were present, viz.: Mr. A. Reid, Auchtermuchty ; Mr. G. Philp, St. Andrew's ; Mr. Peter Galloway, Errol ; Mr. David Constable, Inchture ; Mr. W. D. Hunter, Dundee ; Mr. John Jack, Dundee ; Mr. Robert Black, Lochee ; Mr. Peter Hampton, Arbroath ; Mr. Jas. Ritchie, Forfar ; Mr. Jas. Cairns, Broughty Ferry ; Mr. Alex. Johnston, Perth ; Mr. Andrew Spreull, Dundee.

It was moved by Mr. JOHNSTON, Perth, and carried unanimously, that Mr. Spreull take the chair.

On this being done, letters of apology for absence and regretting their inability to attend were then read from Mr. Lowe, Perth ; Mr. Bisset, Brechin ; Mr. Thomson, Lochee ; and Mr. Jas. Clark, Coupar Angus, and the Chairman proceeded to explain to the meeting the object for which it had been called. After referring to the fact that the want of some such local association had long been felt and acknowledged—at which the members of our common profession could meet in a friendly way and discuss such questions as might for the moment be most important in either the domain of science or of veterinary politics—it was unanimously resolved that this meeting form itself into a veterinary association, to be called the "Scottish Central Veterinary Medical Society."

It was next resolved that the meetings of the Society be held quarterly, and alternately in Perth and Dundee, but that the first meeting be held in the Crown Hotel, Dundee, on Tuesday, 8th November prox. at two o'clock p.m.

It was further resolved that the minutes of this meeting be printed, and that a copy thereof be sent to all members of the profession located within the boundaries of the counties of Fife, Forfar, and Perth, with the invitation that they, and all others so situated that they may conveniently do so, become members of this association.

All such members of the profession, wherever situated, making application by letter to the Secretary on or before the meeting of the association, to be held on 8th November prox., were to be admitted members of this Society without the necessity of a ballot, and to be enrolled as such on conforming with the rules that were to be submitted for confirmation at that meeting.

The Chairman having submitted the rules and regulations of the Scottish Metropolitan Veterinary Medical Association as a basis for the rules of this society, they were, after discussion and alteration, generally approved of, and as altered were to be brought up for confirmation at next meeting.

Mr. JOHNSTON then proposed, and Mr. REID seconded, that Mr. Spreull be elected President.

Mr. SPREULL moved, and Mr. HAMPTON seconded, that Mr. Ritchie be a Vice-President.

Mr. JOHNSTON moved, and Mr. CONSTABLE seconded, that Mr. Reid be a Vice-President.

Mr. CONSTABEE moved, and Mr. JOHNSTON seconded, that Mr. Robertson Madderty, be a Vice-President.

Mr. SPREULL moved, and Mr. REID seconded, that Mr. Philp be elected Treasurer.

Mr CONSTABLE next moved, and Mr. RITCHIE seconded, that Mr. Clark be elected Secretary.

On these motions being put to the meeting they were unanimously carried, and the above gentlemen were then all declared duly elected.

The Chairman having intimated his willingness to address the next meeting, and a vote of thanks having been accorded him for his conduct in the chair, the meeting separated, highly pleased with the prospects of success for the association.

In the absence of the Secretary,

ANDREW SPREULL, *Hon. Secretary, pro tem.*

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this association was held in the lecture-room of the Veterinary College on October 13th, Mr. C. J. Alloway, V.S., President, in the chair. As this was the first meeting of the season, the retiring President delivered an address reviewing the work of last winter. The financial statement was read, showing a balance in favour of the association. The Librarian's report showed about 400 volumes in the library, all the latest works having been added. The election of officers for the ensuing winter was then held, with the following result:—President, Jas. Bell, M.D.; 1st Vice-President, M. C. Baker, V.S.; 2nd Vice-President, Wm. McEachran, M.D., V.S.; Secretary-Treasurer, Mr. Fred Torrance; Librarian, Mr. J. A. Chandler.

The following gentlemen were proposed as members of the Association: Henry C. Kingman, W. P. Robins, J. E. Gardner, W. H. Klock, E. P. Ball, Geo. Remucks, and J. A. Bishop.

The first regular fortnightly meeting was held in the lecture room of the Veterinary College on 27th October, Mr. M. C. Baker, V.S., 1st Vice-President, in the chair. After preliminary business, the following gentlemen were balloted for and duly elected members: Messrs. E. P. Ball, Henry Kingman, Geo. Kennicks, T. A. Bishop, J. E. Gardner, and W. H. Klock. Messrs. John Henry, jun., and C. P. Drake were proposed as members.

Professor OSLER, of the McGill University, then delivered an address, in which he gave an account of his recent visit to England, during which he attended the meetings of the British National Veterinary Congress as the representative of this College. He gave an interesting *resumé* of the proceedings of the Congress, and paid a high tribute to the zeal and professional ability of the energetic president, George Fleming, F.R.C.V.S., to whom, with Mr. J. H. Steel, the unqualified success of the Congress was in a great measure due. He also referred to the pleasing fact that the profession had taken a forward step there in securing status and protection by the passage of the Veterinary Surgeons Bill. In the discussion which followed, Mr. C. J. Alloway, V.S., referring to the state of the profession in that province, regretted very much that no such protection was given to the profession

there. Having been informed that the Lieut.-Governor, by an Act recently passed by the local Legislature, possesses discretionary powers in this matter, he therefore moved, seconded by Dr. Wm. McEachran, "That the Principal of this College be requested to call a meeting of the qualified veterinary surgeons practising in the province of Quebec, for the purpose of taking steps to secure the most favourable legislation possible for the protection of qualified veterinary surgeons in this province.

Professor McEACHRAN was then called on to read his paper on a disease which has prevailed in the county of Pictou, Nova Scotia, for the last thirty years. He described minutely the history, symptoms and *post-mortem* appearances of the disease, as observed by himself in 1880, and by Dr. Wm. McEachran in 1881. He indicated that the disease was "dropsical" in character, and promised at a future date, after the present investigation which is being held by the Dominion Government is completed, to lay before the Association all the facts connected with this disease, which is one that has hitherto had no place in veterinary nomenclature.

EDINBURGH ROYAL (DICK'S) VETERINARY COLLEGE.

THE inaugural lecture to the session at the Edinburgh Royal (Dick's) Veterinary College was delivered on the 24th October in the Council Chamber by Principal Walley, in presence of a large assemblage of students and others. Bailie Colston presided, and among the other gentlemen present were Bailie Hall, Councillors Turnbull, Macdougald, Tait, Hay, Baxter, Russell, and Milne; Emeritus Professor Balfour, Professor Aitken, and Mr. Jas. Farlie, Edinburgh Wool Sales.

Bailie COLSTON, in opening the proceedings, said this was the fifty-eighth year of the existence of the College, which owed its existence to the long-continued labours and benevolence of the late Professor Dick. This year the veterinary institutions of the kingdom opened under new auspices. The Council of the Royal College of Veterinary Surgeons, the representative of the body corporate, had succeeded in obtaining, through the Veterinary Surgeons Act, the recognition and protection of the Legislature. This placed the profession on such a footing as must raise it in the estimation of the country at large. The Council had also succeeded in making such arrangements as would secure equal rights in the examination for the diploma to all the colleges in the kingdom. The Depute City Clerk (Mr. Harris) deserved credit for the clause which he got inserted into the Act with reference to the students graduating at the Scotch colleges. The Royal College of Veterinary Surgeons was simply a licensing body. At the present time it was the only licensing body in existence in the kingdom. Veterinary schools were simply teaching institutions, and were not empowered to grant degrees of any kind. The Council of the Royal College of Veterinary Surgeons was the representative body of the profession. In the elections to it every member had a vote. It consequently included a number of Scotchmen and other graduates of the Dick College. The examining body was appointed by the Council, and was composed of a fair proportion of representatives of Scotch veterinary medicine, and of the sister profession. Many of those who examined in the London section of the Board did the same duty on the Scotch Board, and *vice versa*. The Scotch section sat, as occasion required, in Edinburgh or Glasgow.

Professor WALLEY then delivered his inaugural address as follows: Bailie Colston, Ladies and Gentlemen, "The survival of the fittest in nature" is an axiom now universally accepted. Every system—scientific, political, social or otherwise—which deserves to do so, and which possesses sufficient inherent vitality, becomes a recognised part of the economy of the universe.

Twenty-two years ago only a small percentage of those who, like myself, assisted in the resuscitation of the great Volunteer movement in Great Britain, could have formed even an approximate estimate of the dimensions to which it has attained to-day. Ever growing and expanding, yet concentrating and consolidating, it has by its own inherent vitality, or rather by the vitality of its living units, developed into a force which has no parallel in the history of the mightiest country of the world; and who amongst us can say what its condition will be two decades hence?

As the years roll on, and the ever recurring period of opening of the Scholastic Session returns, the educational and scientific world becomes flooded to satiety with a stream of introductory addresses, and to him who has this perennial task to perform, it often becomes a matter of grave concern as to what subject he shall choose for his harangue, or from whence he shall obtain the material for its composition; and were it not that a concatenation of favourable circumstances has arisen during the past year, I am bound to confess that I should just now have been amongst those who, having exhausted their stock of inaugural matter, have been obliged to fall back upon common-place remarks, or on egotistical references to the Institutions with which they are connected.

In no single year of its existence have so many circumstances of an important character occurred in connection with the veterinary profession as during the past twelve months; and I think it will be both interesting and instructive if we devote a short time to the consideration of these. This is, indeed, all the more necessary when we find that even noble dukes and others holding a high position in the social scale, entertain but hazy and crude ideas of the aim and scope of the profession, or of the character or composition of its governing body.

Like the sister profession, veterinary medicine and surgery had its origin in an ignorant and barbarous empiricism; the cowleech, the farrier, the emasculator were its fathers, as were the barbers and apothecaries of the medical profession, and though its progress towards the light has been slow, fitful, and chequered, it has now attained to a position such as few of its early originators could have imagined, even in their most enthusiastic hopes.

Whatever may have been the position for accomplishments of the early pioneers of the art in this country, no attempt was made to place the profession on a footing worthy of its aims and aspirations by any of our native practitioners, and it remained for France, which had already placed itself in the van of progress, the first public veterinary school being established at Lyons in 1761, to provide the stimulus to the systematic development of the teaching portion of the profession.

Nearly one hundred years ago (1788), the first attempt to establish a veterinary school in Great Britain was made by a French veterinary surgeon, Charles Vial de St. Bel; but as frequently happens when individuals attempt to benefit their fellow-men, his proposals were received with disfavour, and he temporarily abandoned his project; but taking it up again two years later, under more favourable auspices, he successfully launched the "London Veterinary College" in 1791.

Curiously enough, this institution owed its birth—though the inspiration came from St. Bel—and early nurture, not to a scientific, but to an agricultural body, *The Agricultural Society of Odiham;* but it since received important stimuli to its progress in the shape of an annual Parliamentary grant of money, and by the granting, through the favour of the reigning monarch, George III., of the rank of commissioned officers to those veterinary surgeons who might be appointed to regiments.

So far as I know, no further imperial stimulus was given until the year

there. Having been informed that the Lieut.-Governor, by an Act recently passed by the local Legislature, possesses discretionary powers in this matter, he therefore moved, seconded by Dr. Wm. McEachran, "That the Principal of this College be requested to call a meeting of the qualified veterinary surgeons practising in the province of Quebec, for the purpose of taking steps to secure the most favourable legislation possible for the protection of qualified veterinary surgeons in this province.

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THE inaugural lecture to the session at the Edinburgh Royal (Dick's) Veterinary College was delivered on the 24th October in the Council Chamber by Principal Walley, in presence of a large assemblage of students and others. Bailie Colston presided, and among the other gentlemen present were Bailie Hall, Councillors Turnbull, Macdougald, Tait, Hay, Baxter, Russell, and Milne; Emeritus Professor Balfour, Professor Aitken, and Mr. Jas. Farlie, Edinburgh Wool Sales.

Bailie COLSTON, in opening the proceedings, said this was the fifty-eighth year of the existence of the College, which owed its existence to the long-continued labours and benevolence of the late Professor Dick. This year the veterinary institutions of the kingdom opened under new auspices. The Council of the Royal College of Veterinary Surgeons, the representative of the body corporate, had succeeded in obtaining, through the Veterinary Surgeons Act, the recognition and protection of the Legislature. This placed the profession on such a footing as must raise it in the estimation of the country at large. The Council had also succeeded in making such arrangements as would secure equal rights in the examination for the diploma to all the colleges in the kingdom. The Depute City Clerk (Mr. Harris) deserved credit for the clause which he got inserted into the Act with reference to the students graduating at the Scotch colleges. The Royal College of Veterinary Surgeons was simply a licensing body. At the present time it was the only licensing body in existence in the kingdom. Veterinary schools were simply teaching institutions, and were not empowered to grant degrees of any kind. The Council of the Royal College of Veterinary Surgeons was the representative body of the profession. In the elections to it every member had a vote. It consequently included a number of Scotchmen and other graduates of the Dick College. The examining body was appointed by the Council, and was composed of a fair proportion of representatives of Scotch veterinary medicine, and of the sister profession. Many of those who examined in the London section of the Board did the same duty on the Scotch Board, and *vice versa*. The Scotch section sat, as occasion required, in Edinburgh or Glasgow.

Professor WALLEY then delivered his inaugural address as follows: Bailie Colston, Ladies and Gentlemen, "The survival of the fittest in nature" is an axiom now universally accepted. Every system—scientific, political, social or otherwise—which deserves to do so, and which possesses sufficient inherent vitality, becomes a recognised part of the economy of the universe.

Twenty-two years ago only a small percentage of those who, like myself, assisted in the resuscitation of the great Volunteer movement in Great Britain, could have formed even an approximate estimate of the dimensions to which it has attained to-day. Ever growing and expanding, yet concentrating and consolidating, it has by its own inherent vitality, or rather by the vitality of its living units, developed into a force which has no parallel in the history of the mightiest country of the world; and who amongst us can say what its condition will be two decades hence?

As the years roll on, and the ever recurring period of opening of the Scholastic Session returns, the educational and scientific world becomes flooded to satiety with a stream of introductory addresses, and to him who has this perennial task to perform, it often becomes a matter of grave concern as to what subject he shall choose for his harangue, or from whence he shall obtain the material for its composition; and were it not that a concatenation of favourable circumstances has arisen during the past year, I am bound to confess that I should just now have been amongst those who, having exhausted their stock of inaugural matter, have been obliged to fall back upon common-place remarks, or on egotistical references to the Institutions with which they are connected.

In no single year of its existence have so many circumstances of an important character occurred in connection with the veterinary profession as during the past twelve months; and I think it will be both interesting and instructive if we devote a short time to the consideration of these. This is, indeed, all the more necessary when we find that even noble dukes and others holding a high position in the social scale, entertain but hazy and crude ideas of the aim and scope of the profession, or of the character or composition of its governing body.

Like the sister profession, veterinary medicine and surgery had its origin in an ignorant and barbarous empiricism; the cowleech, the farrier, the emasculator were its fathers, as were the barbers and apothecaries of the medical profession, and though its progress towards the light has been slow, fitful, and chequered, it has now attained to a position such as few of its early originators could have imagined, even in their most enthusiastic hopes.

Whatever may have been the position for accomplishments of the early pioneers of the art in this country, no attempt was made to place the profession on a footing worthy of its aims and aspirations by any of our native practitioners, and it remained for France, which had already placed itself in the van of progress, the first public veterinary school being established at Lyons in 1761, to provide the stimulus to the systematic development of the teaching portion of the profession.

Nearly one hundred years ago (1788), the first attempt to establish a veterinary school in Great Britain was made by a French veterinary surgeon, Charles Vial de St. Bel; but as frequently happens when individuals attempt to benefit their fellow-men, his proposals were received with disfavour, and he temporarily abandoned his project; but taking it up again two years later, under more favourable auspices, he successfully launched the "London Veterinary College" in 1791.

Curiously enough, this institution owed its birth—though the inspiration came from St. Bel—and early nurture, not to a scientific, but to an agricultural body, *The Agricultural Society of Odiham;* but it since received important stimuli to its progress in the shape of an annual Parliamentary grant of money, and by the granting, through the favour of the reigning monarch, George III., of the rank of commissioned officers to those veterinary surgeons who might be appointed to regiments.

So far as I know, no further imperial stimulus was given until the year

1844, when, owing to the strong representations of the leading men of the profession, its members were allowed to form themselves into a body corporate, which, by virtue of a charter granted by Her Majesty, was distinguished as "The Royal College of Veterinary Surgeons," the said college being empowered to examine students, and give diplomas to such as proved themselves qualified to practise the veterinary art. The said charter went, however, further than this; it declared that none but those who had obtained the diploma of the R.C.V.S. were entitled to call themselves *veterinary surgeons*. Unfortunately, as has been the case with many similar legal instruments, the latter benefit was rendered entirely nugatory by the unaccountable omission of any penal clause to the charter; and however much money and time the veterinary aspirant might spend, or however severe an examination he might pass, he found himself, practically, in a position, so far as the enjoyment of a distinctive title was concerned, not one whit better than the veriest quack. This culpable omission has been the spot on our sun, the rust on our armour, the clog to our onward progress in the past. Happily, it is now removed, and we can at least hope as we believe, that its removal will prove of inestimable value to the profession. More of this, however, anon.

As the commencement of the scholastic edifice was modest in its nature, so the scholastic course; a few short months comprised the period of study, at the close of which the student received what was practically a diploma of qualification; gradually the period of study was extended to two sessions of five months each, and collateral subjects—such as chemistry—were added to the curriculum. Within a comparatively short period, three other sessions—two summer and one winter—have been added to the course, which, at the present day, is as long and as important as was that of the medical profession a very few years ago.

Since the Charter of 1844, others have been obtained, by virtue of which the R.C.V.S. has been enabled to institute a higher degree than that of member—viz., the Fellowship—and to adopt other measures, having for their object the advancement of the profession.

The Council of the R.C.V.S., as provided for by the first Charter, was composed of a President, Vice-Presidents, and members—the latter being chosen in due course at a representative meeting held annually in London; consequently, they were practically the nominees of those members of the profession who possessed money and time sufficient to enable them to attend the annual meetings, and, as must always be the case, where the electoral body is limited and of one class, the elected represented only one phase of thought and action in the profession—members remaining on the board as antiquated fixtures, whose mental capacities became progressively narrowed with each year of their existence. This state of things has fortunately been remedied by a provision in one of our recent Charters, whereby the election of members is, with the exception of those present at the annual meeting, carried out by means of voting papers forwarded to every M.R.C.V.S., in every accessible part of the United Kingdom and its dependencies, thus ensuring a representative Council in the widest acceptation of the term. The effects of this change in the electoral department of the profession have been most marked and beneficial; new life has been infused into the old tree; the trammels of bigoted and narrow-minded customs have been cast aside, and vigorous action has taken the place of masterly inactivity. In the old Council progress was carefully guarded against, aspirations were suppressed, darkness reigned supreme, the vital stream flowed on, but sluggishly, and no advancement was made. As a body, its condition was similar to the kernel of a nut deprived of heat and moisture; life certainly was there, but activity

was dormant; a crust of indifference had been gradually formed around it, rendering it for awhile insensible to outside influences of a progressive nature. It required some revivifying influence; it received it, as is often the case, from an external source—from the great body of the profession itself—and once this influence was brought to bear upon it, sprouting and vigorous vegetation and fructification resulted. Looking back upon the profession, and considering what it was and what it is, the contrast seems scarcely credible. On the scholastic side—the number of sessions extended from one to five; the subjects taught and examined upon from three or four to upwards of a dozen; a matriculation examination, a higher degree—the Fellowship—were instituted. On the political side—the profession, compacted into one body, the Council, a representative one, composed of men elected by veterinary surgeons from every part of the kingdom and from each of the schools, and elevated by the Legislature into a powerful governing force. Socially, too, the advance has been great, and professionally it has been even greater, many honourable outlets for the exercise of our craft having developed themselves during the last few years. All these changes, it must be borne in mind, have been wrought by the profession itself. Small though it be as a body, it has been possessed of a large amount of inherently potential force; it has quietly thrust itself, as it were, into its appointed place, and that without the adventitious aid of large pecuniary grants, such as have been enjoyed by the other profession, and almost without the aid of friends at court. And as with the profession, so with the schools; all private ventures, all depending on their own efforts, one or two of them at least having but a very small and unencouraging beginning—in the case of our own school a class composed of one solitary student; yet all in a flourishing condition, and all working, I hope, to the attainment of one end, the general good of the body corporate. At the present moment *every* school, so far as I know, is self-supporting—a position, I imagine, which cannot be claimed by the scholastic institutions of any other profession.

Before quitting this part of my subject, it is only right that I should say, that while we have in general matters advanced much, we are in scientific matters still far behind. This is accounted for by the fact that, as a profession, we are poor, as teachers we are hard worked, and as investigators we are handicapped by the incubus of an Act which will, so long as it is in existence, put us, in comparison with our continental brethren, in the position of pigmies contrasted with giants, which will make us *not leaders, but followers.* Granted that there was at one time, and by a minority of experimenters, much abuse of vivisection, that experiments cruel in themselves were unnecessarily multiplied, and that many victims were sacrificed in a reckless and wanton manner, no arguments can justify the suppressive interference with such experiments as those recently carried on by our colleagues in France, and from which such glorious results have been obtained; neither can the suppression of experiments, having for their object the determination of the effects of medicines upon animals, be justified. We hear of the discovery of new symptoms of preventing and curing disease; we cannot adopt them, because we know nothing of them practically, and dare not have recourse to the natural means of making ourselves acquainted with them. It may be said that when we hear of the introduction of a new medicine into medical practice, we can easily utilize it into our own. I answer, We cannot, because we know nothing of its effects, or the doses in which it is requisite it should be administered to the different animals we are called upon to treat; whereas, if we were not hedged in by complex legal formalities, we could by a few experiments satisfactorily determine the point, and add largely to our store of weapons wherewith to fight our enemy—disease. As it is, every time we administer a new drug to a sick animal, we perform an experiment of the

very worst kind, because while we are trying to discover the dose our patient is losing ground which might have otherwise been conserved.

I have spoken of the great changes which have been wrought in our profession. Allow me to direct your attention for a short time to one great influence of the past in the bringing them about. The life-work of a man is not always—perhaps rarely—appreciated, or its value recognized in his own day; it requires the calm judgment of a discriminating posterity to place it in its proper position as an elevating force. Frequently, too, the outsider appreciates more forcibly—probably, because he looks at it from a different standpoint—the influence of the work of an individual than do those who have been directly associated with him. If it can be said of any man that he exercised an enormous influence in the development of a science or a profession, it may be safely so said of the late Professor Dick in connection with veterinary medicine.

Hitherto I have avoided saying much of my talented predecessor, the founder of the institution with which you, gentlemen, members of the Corporation of this ancient city, are so intimately connected, and over which I have the honour to preside. I have done so because, being personally unacquainted with him, I could form no estimate of the value of his work during his life. But recent events have enabled me to form a just conception of his character, and of its influence upon those he taught; and I am led to the conclusion that the one prominent feature of that character was *energy*, and that he possessed the power of infusing that energy into those who came under his tutorial care. Professor Dick has been called the "father of the veterinary profession in Scotland." He was not only the father, he was much more: he was the originator, the maker of it. Scotland before his day knew not the profession, and had he not lived it would probably have continued in ignorance of it for an indefinite period. Professor Dick did what few men succeed in doing: he created a demand, and for that demand he provided a supply; and as the one has since gone on increasing, so the other has kept pace with it, and may in the end surpass it. He was essentially *the* man (so far as our profession is concerned) of his day, but his influence has extended far beyond his day. He was the right man in the right place—a place, I venture to assert, which no other could have filled in his time, for few men possess the same indomitable will and few men would have fought on as he did, against many opposing forces. He found the ball at his foot; he set it rolling with so vigorous an impetus that it has continued to roll even to our time, and will still roll on in the generations to come.

I have said that the influence of Professor Dick extended far beyond his own day. It is more strongly felt in our time than his, and in no way more strongly than in the marked change in the parliament of our profession since the irruption of the northmen therein. The greater part of the advance which has been made, has been through the instrumentality of his *protegés*, and the final stroke—the recognition and protection of our profession, for the first time in its history by the legislature—was given by a Dick College graduate, our present president, aided by Professor Brown, of the London College, and the directors of the R.S.P.C.A., to each of whom we owe a lasting debt of gratitude. I repeat that Professor Dick's influence extended beyond his day; it will be felt in future generations, and they will benefit far more than we by the legislative Act of which I have spoken.

If the energetic and determined character of the professor has influenced his pupils in the direction indicated, it has none the less influenced them in a tutorial and professional sense.

England (except for a very brief period) has never had more than one teaching school; Scotland has at the present time three, and has had a

fourth. The only two Colonial schools in existence owe their origin and their present position to graduates of the Dick College.

I hope it will not be thought that I have been endeavouring to raise the graduates of one school at the expense of another; by so doing I should have lowered myself; in that which I have said I have had no such intention. I have only done justice to the memory of one whom personally I knew not (though I am happy to be able to claim him as a fellow-graduate of the same *alma mater*), but whose influence in the profession, and the honour due to his name, has been brought prominently to my notice by the events of the past few years.

Ladies and Gentlemen, I took, as it were, for my text, in the early part of this discourse, the aphorism that "in nature it is the fittest which survives." Veterinary medicine and surgery have lived and prospered because they were a great social necessity, and because their vitality was contained within themselves. Professor Dick made his mark, because the work which he accomplished was a necessary work, and was efficiently done. His one great work —that with which we are most intimately connected—I am happy in believing has not deteriorated since his time.

Though torn by contending factions, and rent by internal dissensions, though subjected to the active opposition of enemies and the passive opposition of lukewarm friends, it remains a great memorial to the genius of him who commenced its erection with one solitary votary; and I think is a grander memorial than anything which can be devised in the shape of stone or marble statue.

As the Royal Veterinary College of London was assisted in its early struggles by one exotic body, so the Royal Veterinary College of Edinburgh was fostered in its infancy and supported in its adolescence by another exotic body—the Highland and Agricultural Society of Scotland, to whom the best thanks of the profession and the stock-owning part of the public are due, and whose assistance was always greatly appreciated and gratefully acknowledged by the founder of this institution.

I must not leave this room without addressing one word of encouragement to those who are about to commence the study of veterinary medicine, and perhaps of encouragement also to those who have made some advance in it.

Gentlemen, I have shown you what has been done in the past, what is being done now. I have shown to you what the energy of one man is capable of accomplishing, not only in his present but in the distant future. I have impressed upon you the truth, that all that has been done has been wrought out at the expense of hard work and indomitable perseverance. I would tell you now, that only by work can you hope to accomplish anything good or great in the profession you have chosen, and it rests with you whether that work shall ennoble and advance the profession or shall degrade it. All work, we are told, is noble; assuredly it would be a great blessing if only for its healthy influence upon our minds; and no living person succeeded more perfectly in expounding this great truth than did the sorrowing widow of a great man (recently departed), when she wrote, "There is no healthy thought without labour, and thought makes the labour happy"; and again, "I need not be the shrinking slave of toil, but its regal master, making whatever I do yield me its best fruits."

Gentlemen, is for you to determine the nature of the fruits which your work shall bear; it is for you, it is for all of us, to decide whether your work shall deserve to survive, or whether it shall pass away without leaving one character engraven on the fingerpost of time, and without, in the slightest degree, influencing for good the future of the profession whose study you have chosen as your life's work. I ask you to follow the example of the

ancient Romans—so to fulfil your task here, that whatever you do in your life shall bear for ages to come the impress of utility and stability.

Bailie HALL proposed a vote of thanks to Principal Walley for his address, which was seconded by Emeritus Professor Balfour, and cordially awarded.

Councillor RUSSELL, in proposing a vote of thanks to the Chairman, said we were on the eve of very great discoveries indeed—perhaps they had been made already—which would prove the greatest blessing to the human race; and those discoveries had had a foundation in veterinary practice. He had had occasion to look into veterinary books and compare the practice in olden times with the modern, and he thought the benefit animals derived from the change in practice was largely due to the instruction communicated in the colleges of recent date, and to the assimilation between the two kinds of professors of the healing art. He endorsed what the Principal had said about the restrictions imposed upon the experimenting upon animals, with the view of getting information for their own treatment and that of human beings. He could personally state that the Act had proved a great hindrance to experiments which were not of a painful nature. Certain experiments, for example, were being conducted by two members of the British Medical Association upon disinfectants. They experimented with vaccine lymph; but although they were allowed by law to vaccinate babies, they were not allowed to vaccinate calves, and consequently their experiments had to be stopped, and they had to lose a whole summer and get a licence from the Home Secretary to vaccinate a calf. (Laughter.)

The meeting then separated.

GLASGOW VETERINARY COLLEGE.

THE Introductory Lecture to the winter session of Glasgow Veterinary College was delivered on October 26th by Dr. Young, Professor of Natural History, University of Glasgow. Principal McCall occupied the chair; and in addition to a large number of students, the following gentlemen among others were present:—F. W. Clarke, Esq., LL.D., Sheriff-Principal of Lanarkshire; Professor Cleland, and Professor McKendrick, Glasgow University; Dr. Moore, Blantyre; Rev. David Brown, St. Enoch's Church, Glasgow; Professors Knox, Cooke, McConnell, and Macqueen, Glasgow Veterinary College. The following veterinary surgeons were also present:—Mr. Dunlop, Belfast; Mr. MacIntosh, Dumfries; Mr. Thomas Campbell, Kirkcudbright; Mr. Lindsay, Alloa; Mr. R. Rutherford, Edinburgh; Mr. McFarlane, Greenock; Mr. Pottie, Paisley; Mr. Houston, Paisley; Mr. J. McAll, Govan; Mr. Weir, Airdrie; Mr. Weir, Glasgow; Mr. Blackie, Bellshill; Mr. Bryce, Stirling; Mr. Brackenridge, Holytown; Mr. Gardner, Helensburgh; Mr. Neil, Dumbarton; Mr. Prentice, Glasgow; Mr. Mitchell, Cranstonhill; Mr. Pollock, Parkhead; Mr. Mitchell, Glasgow; Mr. J. P. Macqueen, Glasgow; Mr. Wm. Anderson, jun., Glasgow; Mr. Currie, Glasgow; Mr. Wyper, Glasgow; Mr. Blue, Mearns; Mr. Panton, Blairgowrie; Mr. Constable, Inchture; Mr. George Hill, Glasgow; Mr. Peddie, Cathcart.

Dr. Young's address was as follows:—When I accepted Principal McCall's invitation to address you to-day, on the opening of a new session of the Glasgow Veterinary College, I did so, because the opportunity was offered me at once of testifying my interest in the success of the institution, and of giving fresh evidence in favour of the unity of the medical profession, whether the practitioner has to deal with animals or with man.

Gentlemen, you are at various stages of those studies which, in their lowest aspect, will fit you to earn a living, and in their highest will enable you to

benefit mankind by diminishing the evils with which they have to contend. If in former periods the "healing art" was the object of popular sympathy, it is "preventive medicine" which commends itself to the man of science, even more than to the philanthropist. The alleviation of suffering is that which engrosses the attention of the kind-hearted, but it is a higher form of benevolence which fixes its thoughts on the prevention of that suffering, and finds, in the process of alleviation, only the material for investigating the evil to be combated. A recent writer, himself a member of the medical profession, waxes eloquent over the generous disinterested zeal of doctors, who testify in no niggard way their admiration for a man whose lifework it is to devise means of disarming disease. The generous feeling is doubtless there, but it is tempered by the knowledge that the evil successfully combated has its place taken by another formerly in abeyance. Dr. Pangloss, in Voltaire's immortal romance, declared it the best of all possible worlds when he was robbed and maltreated by the Turks; and still held to his creed when, having escaped from their hands, he endured still worse suffering as the consequence of undue devotion to sensuous gratification. The evil he had escaped was to him replaced by another, and the sum of happiness and misery was thus kept in a state of equilibrium.

But if it is impossible to anticipate, even from the highest triumphs of preventive medicines the removal of disease from the world, it is possible to count on the protection of men and animals from general, widespread calamities, and to anticipate the time when men and animals alike will suffer only from individual ailments. The curse of the Middle Ages was the epidemics which from time to time decimated and demoralised provinces. We still suffer from our inheritance: we have outgrown some, at least, of the faulty conditions imposed on man by a civilisation more rapid than the progress of science, but we now live under reversed conditions, for the science of to-day is in advance of its practical application. You, gentlemen, are on the threshold of the profession at a critical time. We seem to have, almost within our grasp, the means of averting the Scarlet Fever, Measles, Smallpox, the Carbuncle, the Splenic Fever, and the many diseases which annually spread grief and ruin. Time would not suffice were I to attempt even a mere outline sketch of this great field of medical enterprise; but I may, with fair hope of success, try to lay before you the reasons drawn from recent medical research for asserting the unity of the profession, and for urging that the scientific truth should be converted into a practical one by the closer union, if not the amalgamation, of the schools of human and veterinary medicine. I have a further object in view—to point out, namely, the extent to which recent experiments, even when manifestly successful, have established a sound method of treatment, but have still left open for you an abundant field for study and experiment.

Historically, the oldest point of contact between human and veterinary medicine is Smallpox, limiting the phrase to scientific contact. For there are older *rapprochements* which rest on popular notions only, and these were as erroneous as, in some cases, they were brutal.

I need not go over the history of vaccination; for all know that it was discovered that vaccination from the pock developed in the cow protected the human subject from the disease Smallpox. You also know that recent inquiries have demonstrated the imperfection of the current Vaccinia as a protective against Smallpox; that Erysipelas and other signs of blood-poisoning have followed, in many cases, the use of the ordinary vaccine matter. In Dr. Cameron's paper, in a number of the *Fortnightly Review* for 1881, you will find satisfactory proof that the value of the current matter as a protective has undergone a depreciation capable of accurate estimation by the statistical method. He shows that the protective influence of

vaccination has steadily gone down, and that the only means of counteracting its declension has been the repetition of the operation in individual cases. By a series of experiments carried on, I grieve to say, at the cost of men, it is now made clear that the transmission of vaccine matter through men is unsatisfactory, prepares for a mortality not anticipated by members of the medical profession, who, as a body, are singularly ill-informed in this matter.

The theory of vaccination is, that if a substance developed as a morbid product in a heifer is introduced into the tissues of man, a series of pathological changes takes place in man which runs a definite cause, the poison being finally eliminated from the system, which is left free of any material whereon the same poison can work: this freedom lasting for a term of years. It has been proved that the Vaccinia or introduced poison works not by means of its fluid portion, but by means of certain solid particles therein suspended, and which may be got rid of by the method of subsidence; that is, they may be got to settle down, leaving a clear supernatant fluid, which is innocuous. For this character of the poison or contagium, the objectionable term, particulate, is employed. The Smallpox or Variola and the Vaccinia are distinct, both in the kind and gravity of the symptoms they present, and it is not yet certain whether they are identical diseases, or only similar in the character of the substances on which they act within the body. Be that as it may, the fact remains that two things are necessary—a poison introduced from without, and a substance which that poison acts upon. It would appear that every human being is born with, or at least early acquires a stock of material on which Smallpox or Vaccinia will act, and it seems probable that every one after a time may reacquire this stock, rendering revaccination necessary, and in most cases the repeated operation succeeds. But if revaccination is not practised, and if the person catches the contagion of Smallpox, the reacquired stock differs from the primary or congenital stock, somehow or another, for the Smallpox is modified, is not as a rule so severe. It appears that if the lymph, or fluid containing this poison taken from vesicles, has passed through numbers of human beings, it is humanised to such an extent that it fails to produce, when introduced into the calf, the true Vaccinia; it has lost its power. To this I attach much importance, as bearing on a question to be afterwards discussed regarding the true character of the poison particles. Dr. Thiele obtained a good Vaccinia by inoculating the cow with Smallpox virus, and asserted that he had got an equally good Vaccinia without the cow at all, but simply by diluting the variolous poison with milk. If this is so, there would be strong reason for believing in the identity of the milder and the severer form of eruptive Fever, characterised by the development on all the surfaces of a vesicular eruption. But though man and the cow have thus a disease in common, it does not follow that the same disease exists in other animals. Indeed, it appears as if it does not exist; for Sheep-pox, though so like, does not seem mutually transmissible. The liability of other animals to similar diseases is not yet fully investigated, and in this domain, you have before you abundant opportunities for study. From observation and experiment it is hard to say what results may not follow; and if nothing else is gained, you may at least have the opportunity of recording differences of pathological action.

The results of vaccination in a disease so easily transmissible as Smallpox, and so apt to assume the epidemic character, could not fail to suggest this possibility of similar treatment for other epidemic diseases. But though the idea has vaguely floated in the minds of medical men, it is only of late that it has taken practical shape. I must refer you to a very copious literature for the details of the progress of this line of inquiry, the last clear statement of the main lines of the history being given by Dr. Cameron in

his presidential address to the Health Section of the Dublin Social Science Congress this year. It is sufficient for my purpose to take a few cases, but I must urge on your attention, the fact that the greatest strides taken by preventive medicine have started from the study of diseases with which it will, in the future, be your special duty, as veterinary practitioners, to deal.

A very terrible disease, Anthrax or Malignant Pustule, the *Charbon symptomatique* or *la maladie de Chabert*, has been productive of serious loss to the agriculturist. Here let me interject the remark that the loss of the breeder is bad enough in itself, meaning, as it does, the paralysis of a great industry and the impoverishment of an important section of the community, but it also means peril to the mass of the people. Epidemic diseases do not burst suddenly into existence ; there is a period of incubation in each individual, and there is for the animals of an infected district a period of gradual development, during which the full meaning of the spreading ailment is uncertain. During this period the community continues to get milk and flesh meat from the agriculturist, and runs a chance of infection from the secretions and tissues of the diseased animals. It is an open question to what extent such food is a source of danger, to what extent cooking obviates the risk. The evidence is contradictory, but this very circumstance increases the importance of our thoroughly investigating every point in the history of a disease. When, therefore, I urge the duty of protecting the agriculturist, it is not merely on commercial grounds, but also in the interests of the health of the people. Human and veterinary medicine here overlap in such as fashion, as to make the existing separation between the students of these two branches of one great art more preposterous than it has ever been.

Now this *Charbon symptomatique* has been brought within the domain of preventible diseases by the work of MM. Arloing, Cornevin, and Thomas, veterinary surgeons at Lyons. They made careful experiments on animals, and demonstrated that the poison of this disease can be "vaccinated"—*i.e.*, can be introduced in small quantities into the blood, with the result of working up the second factor, so as to give the animal immunity from graver infection. This important—nationally important—result has been, by the French Government, put to the practical test, and the laboratory experiments of the gentlemen referred to will find their reward in the increase of wealth of the community, not to speak of the suffering annually saved to hosts of our domestic animals whose condition is, so far as disease is concerned, aggravated by the fact of their domestication.

But these results are only an outcome of the researches initiated by Pasteur, who has reduced prophylactic medicine almost to an exact science. If Helmholz, a surgeon, was the first to demonstrate that the solid bodies in a fermenting fluid were the causes of the change, and, by filtering the fermenting substance, to prove that the fluid part had no effect, thus supporting La Tour's great discovery of the potency of the yeast germs, a chemist has deeply repaid the surgeon's contribution to chemistry by opening up new fields of medical research. Pasteur was a chemist, but with the insight of true genius, he was able to grasp the essential points in the physiological problems accidentally brought under his notice in the course of investigations entrusted to him, in the belief that they were essentially chemical questions. It happened to him to investigate the Splenic Fever of cattle, and he has revealed the extraordinary and unexpected relations in which that disease stands to a very varied set of phenomena. It had been known for years that in the blood of animals affected by Splenic Fever, a schizomycetous fungus, commonly known as *Bacillus anthracis*, was found, and it was believed that this lowly organism was the cause of the disease. Pasteur, putting various facts together, showed that the disease was spread not merely from beast to beast, but was actually nursed by the very means taken to stamp

it out. The carcases of the victims were buried, and the worms were the agents which brought the poison to the surface, whence, by the rank grass growing over the graves, it was retransmitted to the occupants of the field, the infective agents being assumed to be the *bacilli* above mentioned. He experimentally demonstrated the fact by feeding cattle over the grave of their predecessors, and, finally, after many experiments, cultivating the germs in organic fluids, such as meat juice, he obtained a fluid containing the particulate contagium. With this he vaccinated animals, proved that he could convey the most malignant form of the disease, or a greatly modified form which, so far from being fatal, affected to a comparatively slight extent, the health of the animal yet left it safe even when the blood of animals dying from the worst forms of the disease was injected into their tissues. Confident in the results of his experiments, he boldly put his opinion to the severest possible test, and publicly inoculating animals, some of whom he had, others he had not prepared, foretold the results in each set of cases. It is the most striking result of his well-devised experiments that Splenic Fever is now, under authority and at the cost of the French Government, treated as is Smallpox in Britain—warded off by a comparatively harmless vaccination.

A similar story may be told of the Fowl Cholera, for which Toussaint successfully vaccinated, using the *bacillus* found associated with the disease and cultivating it in various ways. Pasteur improved upon Toussaint's process, and communicated the disease in a mild form, which, however, was completely protective even against the crude poison got from fatal cases.

The Pig-plague was likewise shown by Klein to be communicable, he having cultivated the germs and used them for inoculation.

I need not go over all the diseases to which this mode of treatment has been applied, or is in course of application. All that I wish to point out, *hoc statu*, is that, First, that these diseases of the lower animals seem to depend for their virulence on solid particles; Second, that, as Pasteur has the exclusive merit of showing, the virulence can be abated without altering the character of the process, so as to impair the protective influence of the vaccination.

All these results have been gained by experiments on animals, and not one of them could have been foreseen by any process of reasoning, nor inferred even from the most carefully observed facts submitted by the chance of veterinary practice.

One disease, however, I must refer to before passing to the human affections to which parallel treatment may yet be found applicable.

Hydrophobia is a fever which runs a definite course when the period of incubation is ended. Pasteur is at present endeavouring to ascertain if the germ-bearing saliva may be utilised, as in the blood of Fowl Cholera, for purposes of vaccination, and thus to extend the practice instituted by M. Galtier, a veterinary surgeon of Lyons, of introducing for protective purposes, the saliva of Rabies into the veins of sheep and goats. This series of experiments is not yet complete, but there is reason to hope that that awful disease may yet be brought under control.

Now, the diseases of man to which it is desirable that similar treatment should be applied are Scarlatina, Measles, Diphtheria, Typhus and Typhoid Fevers, Relapsing Fever, and Malarial Fevers.

It is right, however, that I should mention one case in which science has more than justified a popular prejudice. It is a common notion that Consumption is infectious, and there is consequently an objection to a healthy and a consumptive person occupying the same room. It has been proved that tuberculous matter may be introduced into the bodies of animals, who thereafter are found to suffer from the development of tubercle in various

organs. Dr. Alfred Carpenter, in 1880, denounced the sale of the products or of the flesh of tuberculous cattle; and at Dublin, Dr. Cameron emphatically renewed the warning, which was afterwards taken up and emphasized by the press. Inflammations in the course of these local tuberculous lesions have been found to yield microphytes, and what is essentially a disease of malnutrition seems to be claimed as a germ disease.

We have evidence, obtained by rigid experiment, of the transmissibility of diseases, even of some whose danger was not suspected and could not have been demonstrated save by experiments on living animals. We have, further, evidence furnished by careful experiments that certain diseases may have their virulence diminished, and their danger as epidemics averted by vaccination, analogous in its character to that which gives protection against Smallpox. No one can doubt that the domain of preventive medicine has thus been vastly extended; nor can it be foretold, till actual trial has been made, what other diseases are not under control. There is a vast field for experimental observation before you; and, if you enter on that field you have the satisfaction of knowing that the work of your predecessors has minimised the "blind trials" unavoidable in the earlier stages of all inquiries. The main lines of the investigation have been determined, and you have the satisfaction of knowing that unnecessary suffering is obviated and time importantly saved.

In the majority of cases the contagium seems to be particulate. What are the particles? are they vegetable germs? or are they particles of organic matter which either exercise a catalytic action on animal fluids, or multiply by so disturbing the balance of the blood as to give rise to a number of similar bodies? The difficulties of determination are illustrated by the fact that some have thought Klein's vaccine particles to be inflammation products. In other cases the contagion seems non-particulate, and, if Toussaint's experiments in the case of Fowl Cholera (retracted by himself for hypothetical reasons which reconciled his results with the germ theory) are confirmed, it appears as if a non-particulate fluid could afford protection against a disease usually treated as particulate in its contagium. Hydrophobia seems a parallel case, as I shall afterwards point out.

While, then, there seems no doubt as to the existence of morphological contagia, there seems good reasons for believing that other contagia are non-morphological.

The early history of the germ theory was that of a struggle between the advocates of spontaneous generation, and the upholders of the doctrine that all organisms are the descendants of progenitors. The latter class of writers had frequent difficulty in explaining phenomena without an appeal to the former hypothesis, and we find Burdon Sanderson in such a strait, suggesting that bacteria may be the carriers of infection, yet be utterly incapable of originating the infection which they convey (*Med. Chir. Trans.* 1873, p. 354). Bastian naturally asked why one set of particles should require the hypothetical aid of another set of particles to carry them? Tyndall has denied Sanderson's view, but Sanderson has not himself withdrawn it. We shall find afterwards that in essence this suggestion has some ground, and that, on the one hand, the bacteria are credited with the possession of some peculiar content of the ferment order, which, and not the organism, promotes change; on the other, they are recognised as carrying along with them substances of high potence, to which they are entirely subordinate. This latter theory assumes, as Dr. Cunningham has well argued, that the constant association of bacteria with certain diseases is an argument against the bacterial influence, but strong proof in favour of the common character of the changes which at certain stages encourage bacterial development. Of heterogenesis or spontaneous generation, it is now unnecessary to speak.

The controversy is at rest, not because the parties are convinced, but because the advocates of the spontaneous origin of living things have had their arguments and experiments practically refuted, the margin of possible error in the facts thus adduced being too narrow to base on it any rational hope of success.

As the evidence against heterogenesis accumulated, the presumption in favour of the existence of atmospheric germs was extended to the causation of disease, until it seemed as if the germs were, *in se et per se*, capable of producing any given disease, the climax being reached in the statement that the Smallpox germ produces Smallpox, the Splenic Fever germ Splenic Fever. The strange confusion which, in spite (of at least, the uncertainty of) the botanical evidence, thought the specificity of bacteria indisputable; the curious reasoning in a circle which held that, because poisons were specific, the germs supposed to be therewith associated must be also specific, and the converse, will furnish to the future historian of pathology a puzzling study. But the leaders of the new school, always, as is usual, outstripped by their disciples, have for some time recognised that germs alone could not be held as the exclusive factors, and we consequently find that Lister, the ablest of our English inquirers, some time ago recognised the importance of a second factor. In showing the different phenomena which were associated with the same bacteria under different conditions, he showed the power of the second factor, the soil. Now it seems as if the admission herein implied were likely to go farther; for as the specific difference of bacteria is denied by some of those most competent to decide on such a question, and as the evidence in favour of such specific differences is on all hands admitted to be so delicate as to require the skill and experience at the command of but few observers, the importance of the second factor becomes proportionately greater. There is the alternative already referred to, not acceptable to the advocates of the germ theory, namely, that the germs are infection carriers; but even this obviously does not help to get rid of the second factor.

Among the current statements is one to the effect that germs are found within the body. Lister, and after him Tyndall, have shown that the deepest air in the lungs, *i.e.* air expelled by the most forcible expiration, contains no floating particles, and Lister thus accounts for the absence of bacterial symptoms in cases when fractured ribs have punctured the lungs, and thus let air into the pleura. By these experiments the germs do not get into the body through the lungs, do not get in directly from the air; howsoever they get in, they do not set up mischief in ordinary circumstances. So far as Listerism, or the theory of our modern antiseptic surgery (in plain English, cleanly surgery) is concerned, the only active germs are those which attach themselves directly from the air to the wounded exterior of the body. The latter seem, therefore, to be credited with vitality; the former seem to be admitted, *sub silentio*, as negative in their influence. To this I attach much importance. But, as certain germs are assumed to have travelled extensively through the body before they appear, as in Typhoid Fever, at the intestinal closed follicles, there is both suspended vitality and an extraordinary selectiveness attributed to bodies whose chemical composition, systematic position, and even individual characters are still among the unsettled questions of biology. But it has been denied that germs exist in normal blood, the rounded bodies called micrococci being due to the disintegration of white corpuscles, the same bodies, be it remembered, which are undoubted spores in disease. Taking into consideration the negative results as to the decomposition of fluids obtained by Pasteur and others, I will accept as a truism of which he did not see the full force, Koch's italicised statement, "I have come to the conclusion that bacteria do not occur in the blood, nor in the tissues of the

healthy living body either in man or of the lower animals." The word *healthy* is the important word, and I may have hereafter to refer to this final judgment, which implies the possibility of germs entering an unhealthy body in some fashion which does not find its equivalent in health. The fact is the theory of diseased processes under the influence of germs based on experiments which, dealing with fluids in glass tubes, can properly have no analogue in the living body, except in cases of traumatic infective disease.

The soil, then, on which the germs are planted, or the second factor, to use Maclagan's phrase, is, I repeat, at least co-ordinate with the bacteria to which specific properties are credited. It is known that dilution of a poison weakens its virulence (though in some cases contradictory experiences appear to have been realised), and to this dilution is attributed the fact that some people suffer at once, others not till after an interval, others again escape wholly. Whether there is, 1, real dilution, *i.e.* mixture of air uniformly with the contagium, or, 2, patchy distribution, as in the bacterial clouds which Tyndall imagines, or, 3, partial destruction by oxidation, is immaterial; the fact is, that the incidence of the disease is unequal, and that the escape of some points directly to the absence in them of the second factor. The history of every epidemic abounds in such cases, and the very theory of vaccination rests on the production artificially of that condition which it is not illegitimate to assume as actually existing. Were it otherwise it would be impossible to understand how any one should escape. Indeed the advocates of the germ theory—I do not mean the leaders, but the rank and file—have overproved their case, and denied to the tissues of the body the power of originating tissue change, without the stimulus of foreign organisms. Thus Burdon Sanderson assigns the inflammation which follows the subcutaneous injection of ammonia to the bacteria with which the advancing inflammatory ring is crowded. It would be logical, under these circumstances, to say that the gotalus poison, the result of tissue change, is due to the presence of bacteria which are found in the mouths of snakes as of other animals.

It is incorrect, moreover, to assume bacteria as the sole factors in the infarction of inflamed parts; the altered density of the blood counts for something; the disintegration under heat of colourless corpuscles yields the zoöglœa masses on which Koch rests so much, while the broken-down red corpuscles are the source of the micrococci, which do mischief when bacteria do not put in an appearance.

The analogy of beer fermentation has been invoked as explaining why one small portion of contagium, little more than a particle, may originate, and rapidly, a large mass of morbid and morbific matter; and it is claimed that nothing short of fungi multiplication offers a parallel case. But two cases may be cited, neither of which can be explained by fungus action, the one case outside, the other inside the body. Dr. Lyon Playfair drew attention to the decomposition of oxamyde, a case in which a minute quantity of acid suffices to reduce a large quantity of the substance. The ammonia which neutralises the acid liberates oxalic acid, and so on, till the whole is converted into ammonia and oxalic acid. The other case is within the body. The poison of snake-bite, say of cobra or crosalus, kills in a very brief period, the disorganisation of the blood being as thorough as it is rapid. No one has asserted the poison to be particulate, and there is, as I shall show afterwards, good reason for believing it to be a pure ferment. The preparedness then of the subject for this contagium has to be kept steadily in view. Wherein it consists, it is difficult to say, any more than it is possible to say what is the physical condition of the blood on which the poison operates. But it is certain that no contagium, save that of venomous animals, acts without a considerable period of incubation approximately fixed at a maximum of three weeks.

Contrary to what might be expected, it is said that contagium diminishes as the bacteria increase, *i.e.*, as decomposition advances. Baxter notes the destruction of the specific virus of Smallpox by putrefactive change, and Klein says the microphytes of Enteric Fever are most abundant when the necrotic changes are most advanced; while Jaillard and Laplat, in 1864, showed that Splenic Fever blood was the more virulent the fewer the bacteridea. Detmers, by successive filtrations, got rid of the microphytes, and held them innocent of the fluid proof of this particulate nature of the germ. But as his prolonged filtrations were done in air, he had in fact oxidised the poison, and gives the proof when he says he failed in winter, which he seeks to account for, supposing he had not got rid of the micrococci. In some cases this has been ingeniously met by a distinction between bacteria and their germs or spores; as if, like parasites, the spores could not be infective unless introduced into another organism. But this transference is actually done in the experiments which have proved the decadence. This is an instance in which experiments outside the body give erroneous impressions.

When the death of the germs by pure oxygen under pressure was referred to by Bert, Pasteur said that the bacilli were, on contact with the oxygen, converted into spores (*corpuscles-germes*), a remarkable transformation of curious botanical significance.

Grauitz, on the other hand, asserted that innocent microphytes may be made virulent by cultivation. It is difficult to understand this, save on the hypothesis that the disintegrating action of microphytes on organic fluids creates substance in these fluids which, inoculated with the microphytes, give rise to septicæmia; and my reason for making this suggestion is that a perusal of many narratives of experiments leaves a doubt on my mind whether specific diseases have been with sufficient care disentangled from septic disease.* It has been proved that the bacillus contagium has been made virulent by being transmitted through young guinea-pigs, and as this kind of observation has been so frequently repeated as to be now a safe, as well as a probable acquisition, I claim it as an argument against the microphytal character of the disease conveyed. The value of a young animal as a multiplier of virulent power lies in the fact that the fluids of a young animal are more highly corpusculate than those of an older, that there is a more vigorous tissue change going which multiplies the virus without any reason existing for the belief that the microphyte displays unusual vitality. The rapidity of the cell changes that take place, and the multitude of corpuscles liberated, are the physiological phenomena misunderstood when *bacterial* infection is said to be intensified by aid of young animals.

When, on the contrary, virulence is said to be diminished by cultivation in milk, or an organic infusion, animal or vegetable, there is here clearly a dilution of the virus, for the "germs" are not asserted to multiply with the same speed in these artificial fluids as in their proper soil, which is the blood of a living animal.

I have insisted throughout on the necessity for the existence of a "second factor" in every case of disease, on a preparedness of the blood of the patient. I have elsewhere had occasion to urge this in the case of Typhoid Fever, and what I then urged with a view to prevent a blunder in hygienic theory on the part of our health authorities, I now repeat on scientific grounds. I some years ago insisted on Influenza being a phase of Typhoid

* Pathologists or physicians have not been always associated with the experimentalists. I am the last to claim this line of research as the exclusive property of the biologist or medical man, but the physician's eye and experience are, unless guided by preconception, of importance in translating morbid phenomena into a commonly understood language.

when it occurs epidemically, and Dr. Henderson, of Helensburgh, has not made himself popular by setting forth something of the same opinion. My contention was that the poison of Typhoid, whencesoever derived, had no power unless the patient was prepared; and I illustrated this thesis by the analogy of the Seidlitz powder. If the two ingredients are dry, effervescence is brisk; if one is damp, it is less so, and if the acid has been thoroughly wetted for some time, little evidence of the combination may be obtained. In like fashion you may have every gradation from a Typhoid fatal in a fortnight to a lingering Influenza with a diarrhœa, oddly enough occurring in its course and not perhaps got rid of, at least not recovered from for four or five weeks. If this germ theory is to be dominant, though it is after all an hypothesis, then sanitary precautions are apt to be relaxed; air-borne germs are a kind of providential dispensation; the milkman is a convenient scapegoat. Amateur legislators, with enough law to blunder in a not easily corrected fashion, hunt down the vendors of a fatty fluid, and filthy overcrowded houses are restored with their occupants to the tender mercies of the Casbys, whom Dickens describes in "Little Doritt," who are always provided with a convenient Paucks to grind the people and minimise the expenditure on their houses, and whom the authorities find it (we ratepayers fail to understand how) so difficult to compel to realise their responsibilities.

The reasons for insisting on the vast importance of the second factor are:—

1. That not all persons suffer from communicable disease.
2. That epidemics terminate when they have exhausted the number of the prepared.
3. That similarly the disease terminates in the individual when the material on which its contagium operates is exhausted.
4. That vaccination now and again discovers insusceptible individuals.
5. That in the diseases of infancy exceptional cases occur in which one disease seems in its operation to create, or at least leave ready the pabulum on which another works.
6. That all diseases of a contagious or infectious nature are not equally transmissible to all kinds of animals or to all animals of one group—Splenic Fever and Glanders being noteworthy cases.
7. That innocent germs exist indistinguishable from the so-called virulent forms and sometimes in the same individual, while the same microphytes are found (Liesering, 1860) in Pig Typhoid and in Splenic Fever.
8. That, according to Tyndall in his test tube experiments, there is no reason why air germs should be moistened by the fluids on which they alight, unless there is an affinity between their contents and the fluid with which they have come in contact.
9. That according to Tyndall the "preparedness of the germs" accounts for the varieties of the "protean Typhoid Fever" (Murchison), explained by ordinary observers as due to a difference in the source of infection, Tyndall's explanation implying that all the "germs" in a contagium are at the same stage of development.
10. That predisposition has been experimentally shown to be needed, as when Pasteur cooled his fowls with cold water before he could secure their inoculation.
11. That Lister, when he admits that the fluids of wounds may modify the power of germs to cause injurious changes, practically admits the secondary position of the germs relatively to the fluids of their host.

I do not put forward these reasons for controversial purposes only; I urge them because they underlie a big question of public duty. If disease depends only on floating contagium, we may hold our hands, and, with one fixed on the grudging ratepayer, the other on that powerful municipal factor, the

house-owner and his agent, say with convenient fatalism, it is the Lord's will. But if you need two things to make a case of disease, a contagium and a substance in a man's body on which the contagium may work, their sanitary science (which is not yet a science, only a very accidental art), or, in safer phrase, preventive medicine, has a heavy piece of work before it—to use every means of avoiding that preparedness on the part of the public which I conceive to be half the battle in an epidemic.

I have not yet referred to the germs in their systematic relations. Are they microphytes? Crichton, I have already said, thinks that the reagents used in microscopy have to do with the development of phenomena which simulate vitality. Dr. Acland has drawn my attention to experiments which show that increased warmth, increased above blood heat, causes alteration of the blood corpulses which yield appearances very similar to those claimed as proofs of the microphytal origin of disease. The breaking up of the red corpuscles so as to yield refracting bodies indistinguishable from micrococci, the solution ot the outer layers of colourless corpuscles so that their granular contents, held together by the protoplasm of the corpuscle, present all the appearances of what are called the zoöglœa form by some writers, the elongation of red corpuscles under the cover glass as drying advances and pressure increases, till at least a bacillus-like object is under the eye; all these are mere suggestions of the difficulties attending the solution of this germ problem. On a question of such extreme difficulty as the determination of objects requiring the highest power of the microscope, it is above all things necessary that competent observers should be in agreement, and that conjecture should be reduced to a minimum. Yet an ardent, but not overwise admirer of Cohn and the germ theory, says Cohn is 'the only person who would recognise the difference of the germs. The unconscious satire of this is a sad comment on the lack of the true scientific spirit in which so important a problem should be discussed. On the other hand, observers are found calmly asserting the presence of micrococci and their specific characters in the intestinal contents of mammals. Microscopists of experience and caution may be pardoned if they decline to enter the list with observers so omniscient and infallible. After wading through a tolerably extensive literature, I confess that I have not got anything definite and free from doubt. It is easy to say, as has been said to me and others, that the whole thing is beset with difficulties. If a foxhunter is lost in a mist, he does not gallop straight ahead, with the chance of jumping into a quarry: he casts about till he hits on some clue, and if none avails he is content to await the light. Is the reputation of any man so important when set against the good of the race, that we must accept his crude hypotheses, and thereon build a pile of new, doubtful, and probably false pathology? When, therefore, Pasteur says, as the *British Medical Journal* declares he said, that every one must be wrong who doubts the specific properties of germs, when one finds that the germs themselves are open to doubt, that the properties assigned to these are unproved, and that even the specificity of their effects is capable of another than the ordinary "vitalistic" explanation, one feels that the current theory is about its maximum of sway, and that in a year or two more scientific methods will have a chance of guiding your studies without your caution being called ignorance, and your desire for evidence treated as a proof of imbecility. The germ mania is, like some other evolutional manias, one from which the healthy, common sense of naturalists will speedily resile.

It is not easy, within the compass of an address such as this, to gather together the contradictory evidence as to the so-called germs. The so-called microphytes are—1st, Micrococci; 2nd, Spores; 3rd, Bacteria; 4th, Bacilli; 5th, Vibriones. Under each of these five heads we are told that we have innocent, septic, and specific forms. The recognition of these varieties is effected

by a circular reasoning to this effect: a certain disease has certain symptoms: in the blood or other fluids of the patient you have a microphyte: if inoculation with the fluid containing these microphytes gives rise to the same symptoms, the microphytes have done it.

But another fallacy has been appealed to. It is said that if a certain treatment is successful, the thing treated must necessarily have been of microphytal origin. Salicylate of soda is successful in the treatment of acute rheumatism, and, behold, acute rhematism is a bacterial disease! Do the people who thus talk pretend to omniscience? In the first place, do they know for certain the lactic and uric formations which go on in the body as the normal results of abnormal cell chemistry? Is the relation of urea to uric acid one wholly dependent on the intervention of vegetable germs? Do they remember that salicylate of soda, like all other germicides, acts by lowering the energy of all corpusculated fluids?

If few bodies are free of such germs, how is disease of the rheumatic or gouty character (for the two cannot be pathologically separated) not universal? To the advocates of a dogmatic assertion regarding the character of rheumatic or gouty disease, it would be vain to recall the fact that salicylate of soda has been proved experimentally not to destroy the vaccine virus, and they might deem it uncalled-for curiosity if one asked whether rheumatic fever had been produced by inoculation. It may be said by some man of science, anxious to help his medical friends out of their logical scrape, Perhaps each kind of germ requires its own antidote. Now has any one shown the germs of acute rheumatism to be susceptible to the influence of the drug? Has any one explained why the drug is not successful in all cases of acute rheumatism? Has any one even shown that there is a distinctive microphyte in that disease? A therapeutic inference such as this suggests in very strong terms that physicians have forgotten, if they ever knew, the complicated character of tissue-change, and have ignored the fact that a chemical substance which alters the composition of the blood must necessarily alter the composition of the tissue reaction to which this altered blood contributes.

It is the fashion to ridicule Liebig's theory of pathological fermentation, and on *a priori* grounds to call in question the possibility of particles of organic matter so disturbing the equilibrium of organic fluids with which they come in contact that, without themselves multiplying, they give rise to the multiplication of similar bodies. The experimental inoculation of Tubercle has shown that if cheesy matter is introduced into an animal's body, Tuberculosis may be developed. I hope no one has seriously put Tuberculosis among germ diseases, microphytal diseases! I cannot at any rate find any where a diagnosis of the germs which give rise to this disease of malnutrition. If such microphytes have been demonstrated, if their potence has been experimentally placed beyond doubt, then the warnings against the use of the milk of tuberculous cows are almost unnecessary; there is less danger from the milk than from other noxious influences. But nothing of the kind has been demonstrated, and nothing has been proved against the possible catalytic action of which, I take it, artificial septicæmia is the experimental proof. The distribution of such poison is a difficulty to which I ask your attention, because it is a very serious one. On the one hand you have a notion that microphytes cause Typhoid Fever: on the other hand that microphytes are a consequence of that blood dyscrasis which the Typhoid poison originates. Sewer gas has been put out of court as the first factor; it has been wholly neglected as the cause of the second factor. What is the first factor? Even in Glasgow I think we do not hear that the effluvia of Typhoid evacuations do much to spread the disease; they have done nothing in that direction in the fever hospital. But the inspection of dairies satisfied popular excitement by trading on this disproved notion, and amid all the cackle for supervision of

the milk trade, no voice has been raised for the compulsory inspection of every farm in the country, just as every house in a town is liable to inspection. Foul matters in the water used for dairy purposes do, with the aid of milk, just that, and no more, which foul water does without milk—originate Typhoid. The difficulty as to the life of Typhoid germs in water applies to them whether the germs are microphytes or albuminous products of waste cast off from the ulcerated closed follicles. There is no evidence on either side of this question, and you have here a wide field for experimental research, both of the chemical and pathological kind. I may, however, indicate one or two phenomena which illustrate the line of research I suggest. The blood of Splenic Fever, dried with its bacilli, is after a lapse of time still virulent. The bacilli are said to be the virulent factor, but as I have already indicated, the associated organic matter has equal claim to the evil reputation. Nor can this be easily disputed in face of the fact that the virus of a snake's poison gland is terribly potent even after the lapse of years, a promising naturalist having been killed in the Jardin des Plantes by an accidental prick from the fang of an old specimen of venomous snake. Bert killed spores by means of compressed oxygen, but failed to destroy the virus of a scorpion, or of vaccine matter, or with pus from glanders. Chauveau gives a critical case when he reports that the lambs of ewes which died of Splenic are proof against that disease ; the placenta filtered out the solid particles, and only the fluid part of the blood was inoculated in the lamb.

This brings me to the non-morphological poisons which are, to use D'Arcy Power's description, soluble in water, capable of passing through porous earthenware under pressure : difficult to pass through animal membranes ; are killed by 71° C. (159° F.) in solution, or 100° C. (212° F.) in air.

The first disease I would speak of under the head of non-morphological poisons is Hydrophobia, and I do so, not because it is a subject on which there is much certainty—rather the reverse, but because it is of very great importance in Glasgow. The relations of the dogs in this city, and the enormous excess of males, and the increase of Hydrophobia, point to this as a subject well worthy the most careful investigation by the experimental method. In a recent conversation with Dr. Carpenter, he mentioned several cases supporting the view that some of the so-called Hydrophobic cases were hysterical, that in fact the diagnosis of cases where the nervous system is so largely involved is frequently open to doubt. Now the virus of Rabies is supposed to be communicable by the saliva ; and Pasteur holds that the microphytes conveyed therewith set up the disease. But the recent experiments of two individuals with non-rabid saliva, show that that secretion desiccated is poisonous. Vandyke Carter killed monkeys with the saliva of patients labouring under Spirillum Fever, or Relapsing Fever. Now the poison of the venomous serpent is a fluid secreted by glands, is a normal product of normal tissue-change ; it is derived from glands homologous with the salivary glands. If we find that human saliva by the ferment (as we may call it in the meantime), ptyalin, affects organic compounds, it would be difficult to deny that it may contain other ferments, in small quantities in man, in very high concentration in serpents. The case of Hydrophobia, then, is still an open one. Galtier, of Lyons, a city whose veterinary school is doing more for pathology than any other institution, is at present experimenting on this subject. He has found that the virulent fluid may confer protection against inoculation into the tissues, if it is introduced directly into the stream of a blood-vessel. The experiments are most interesting, and will, if satisfactory, throw much light on the particulate or ferment character of the poison.

Naegeli thinks the contents of microphytes may be the ferment which sets up active changes, and that the disease is thus not the result of changes ini-

tiated by the feeding of the microphyte. Lister has adopted the same view. Onimus dialysed the blood of Typhoid Fever, and inoculated with the fluid full of organisms on the outside of the dialyser, but found it innocent; whereas the residue within was virulent. If the organisms had been specific, both experiments should have succeeded equally; but the ferment or the particulate poison, not microphytal, was kept back. To meet this case we should be called on to add another test to our germs; bodies apparently identical are not identical if, when present on both sides of a dialyser, they are poisonous on the one, innocent on the other.

Septicæmia, claimed as a germ disease, has been produced, not by the crude septic fluids, but by the inoculation of sepsin, a substance obtained by Bergmann, in 1868, from putrid matter; a similar result having been, as already said, obtained by Panum: the two observations placing this substance, as a cause of disease, among the non-morphological poisons, or ferments proper.

Gentlemen, I am not opposed to the Germ Theory. I do not cavil at it. But I am opposed to the unhesitating acceptance of any theory which involves so much hypothesis, and a sudden and entire uprooting of our former notions as to even normal processes. There is need for further observation, but above all for the more vigorous application of chemistry to the investigation of results.

I accept the results hitherto obtained as most valuable; for practical purposes many of them are unspeakable boons to mankind and to our domestic cattle. But successful treatment does not constitute the basis of sound pathology. If I have to-day succeeded in drawing your attention to the grand principle which should ever guide your practice, namely, that success in the treatment should make you doubtful as to whether you have grasped the real pathological condition with which you have to deal, I shall be well content. As the constant association of two phenomena is not necessarily causal, so the constant curative effect of a particular drug is not demonstrative that any theory you may have formed on the condition of the patient is correct.

In conclusion, the lecturer urged again the necessity for the combination of the schools of human and veterinary medicine as essential to the progress of pathological science, and most important for the study of therapeutics.

THE NEW VETERINARY COLLEGE, EDINBURGH.

THE winter session commenced on Wednesday, the 26th October, Principal Williams in the chair.

There were present Messrs. Bain, Liverpool; Borthwick, Kirkliston; Aitken, Dalkeith; Aitken, Edinburgh; Spreull, Dundee; Bowman, Beverley; Middlehurst, Liverpool; Roberts, Kendal; Brock, Glasgow; Connochie, Selkirk; Rutherford, Edinburgh; McGregor, S.S.C., Edinburgh; Wardlaw C. A. Edinburgh; Falconer King, City Analyst; Dalling, Bathgate, Brownee, Coalbridge; Malone, Wexford; Hume, Haddington; Professors McAlpine and Lewis, and a large number of students.

Letters and telegrams of apology were received from the following gentlemen:—Professors Robertson and Pritchard; Messrs. Harpley, George Fleming, J. Roalfe Cox; R. Reynolds, Liverpool; Lawson, Manchester; P. and A. Taylor; T. Taylor, Manchester; A. Phillips, Piershill Barracks; P. Walker, Bradford; C. Challinor, Pendlebury; Schofield, Pontefract; H. Snarry, York; Wm. Broughton, Leeds; J. Nettleton, Northallerton; J. Hepburn, Coldstream; C. Stephenson, Newcastle; H. Barnes, Malpas; H. and R. Cartwright, Wolverhampton.

Dr. HUNTER, Professor of Physiology in the New Veterinary College, Edinburgh, gave the opening address at the commencement of the present winter session. He began his address by welcoming the students to their winter work, by showing the nature of that work, and impressing upon them the necessity for constant progress. Even after their studies were supposed to have come to a close, and they had entered on the practice of their profession, the necessity for study was not removed, unless they wished to remain contented in the very humblest ranks. In the course of his remarks, as illustrating the very great advances in veterinary medicine as well as in those departments supposed to belong more particularly to the sister profession, he gave a short history of the germ theory—how many specific diseases had been proved beyond doubt to owe their origin and continuance to certain organisms found in the blood and fluids of the affected animals; and how it was quite possible that we should be able to trace the origin of many more, if not all of the now known specific diseases, to similar causes.

The work of Pasteur in connection with ferments, and his later investigations on Silk-worm Disease in France, in particular his valuable contributions in regard to our knowledge of Splenic Fever, were cited as instances of our rapid advance both towards a scientific diagnosis of certain hitherto fatal diseases, and to what was more important, a means of prevention, by inoculation with a weakened virus. The importance of this as a real preventive measure was discussed, and the amount of valuable knowledge on this subject resulting from the labours of Chauveau of Lyons, of Koch of Germany, of Toussaint of Toulouse, and several others, was instanced as showing how great a part had been taken in these investigations by veterinary surgeons. After speaking shortly of Wool-sorters' Disease, of the ease with which contagion might be contracted, and of its marked fatality, he impressed upon all students in whatever department of medical science they might be engaged, the necessity of becoming thoroughly acquainted with the microscope as a means of diagnosis.

The merits of cremation were discussed, and reference made to its seemingly extended employment, in regard to the human subject at least, in Germany. It seemed that mere burial was no protection against the continued life and further spread of the germs of many fatal diseases, and that the only sure means of destruction was burning. During the course of the address several references were also made to the serious impediments in the way of British progress in these departments, owing to the obstructions caused by the Vivisection Act. The address was brought to a close by again giving several wholesome pieces of advice to the students, in regard to their methods of study, and they were reminded that "art is long, and life is short."

Professor WILLIAMS proposed a vote of thanks to Dr. Hunter for his excellent address, and expressed his gratitude to the many friends who, by their presence and correspondence, had again shown the warm interest they felt in the continued success of the College.

He then referred to various matters affecting the profession, not the least of which was the Veterinary Surgeons' Bill, the purpose and effect of which he explained. He said the Bill had met with opposition both within and without the profession, and, he believed that the opposition was made in all sincerity; but the Bill was now law, and he trusted that the bitter feeling which had been aroused would now be forgotten, and that all would unite in still further advancing a profession now protected by the law of the land.

He then referred to the pupilage clause, which he said had been found to be beyond the powers of the Council to impose. He had no sympathy with that clause, and felt sure that the majority of those present would agree

with him that it would have been impossible to carry it out except in large cities. In Scotland it would have been an impossibility, and, by preventing respectable young men who could not afford time and means for this pupilage from entering the profession, would have been the means of increasing the number of non-qualified men, notwithstanding the Veterinary Surgeons' Bill.

With reference to the experiments of Pasteur and others, alluded to by Dr. Hunter, he was of opinion that the authorities of this country had not taken the advantages derivable from inoculation, which undoubtedly had been the means in Edinburgh of arresting, indeed of exterminating, Pleuro-pneumonia in cattle. He thought that even greater results than at present obtained would be got by the attenuation of the virus (suggested by these experiments) even in that disease. By greater results he meant that the few unfavourable cases which now occurred would be avoided.

During the summer, while he had been engaged in an important investigation for the Highland and Agricultural Society, regarding certain diseases of sheep, he was much impressed by what he had seen, and he could not help expressing a hope that some young, active, and scientific man would soon be specially sent by the Government to study the many almost unknown diseases of sheep, etc., and that a chair of comparative pathology would be instituted, from which the knowledge so obtained could be given to the world, to the mutual advantage of the profession and the public.

The Rev. J. OVEREND, M.A., seconded the vote of thanks to Dr. Hunter, and expressed his great satisfaction at seeing the benches so well filled with students, to whom he gave a few words of caution and advice.

The proceedings terminated by a vote of thanks to the chairman, proposed by M. MCGREGOR, S.S.C.

MONTREAL VETERINARY COLLEGE.

THE session of this Veterinary College was opened, on October 4th, by an address from the Principal, Dr. McEachran, when there was a good number of students present and also some members of the medical profession.

After welcoming the students, Dr. MCEACHRAN proceeded to point out the new departure which had taken place in connection with the veterinary profession during the last few years. In consequence of the spread of contagious diseases amongst cattle, whereby the food supplies of the people were seriously affected, various governments had been led to pay greater attention to veterinary science, which had been one of the last, if not quite the last, to emerge from the darkness and superstition of what are called the dark ages; the village farrier having been looked upon, until comparatively recent times, as possessing all the knowledge necessary for the cure of diseases amongst the brute creation; though in ancient times, as far back as Homer, considerable importance was attached to the curative treatment of the lower animals. But at the beginning of the present century, veterinary colleges were established in various countries in Europe, and many left the medical profession for the veterinary. Since that time the science had made great progress; and extensive and valuable additions had been made to its literature. The veterinary profession required equal intelligence, education, and scientific knowledge with the sister profession; and it was a mistake to regard it as a degree or two below the so-called liberal professions, as it was regarded when ignorance, cruelty, and superstition held sway. In some respects it was more difficult than the medical profession, which had but one animal to deal with, capable of speech; whilst the veterinary profession had

to deal with the whole family of domestic animals; some of which might have intelligence, but lacked the power of expressing it. The importance of the profession had never been felt more than during the last two or three years. He then referred to the enormous losses sustained in England and the United States through the neglect of the science and the destructive consequences of Pleuro-pneumonia, the Foot-and-Mouth Disease, and Rinderpest. Referring to the spread of these diseases in the United States, he said if they once crossed the Alleghany Mountains, the matter would be beyond the government's control. The American Government had done nothing towards the support of the veterinary colleges, or the recognition of the graduates, except recently in the changed order of things in connection with the army. Up to a few months ago any groom or farrier was eligible for the position of veterinary surgeon in the army. Now only qualified members of the veterinary profession were admitted, and they were raised to the rank of officers; whereas before they had only the rank of sergeant. There had also been a veterinary department added to the department of agriculture; and it was the intention of the department at Washington to appoint port inspectors as in Canada. Amongst the individual States Illinois had taken the initiative in organizing a veterinary department, and other States were following. He represented Canada as treating the profession better than either the United States or Great Britain, though he did not say that even here the Government gave all the assistance it should. In Germany, France, Russia, Norway and Sweden large sums were voted annually for the support of the veterinary colleges. They were, in fact, Government institutions. He proceeded to give a detailed statement in reference to the colleges in European countries, and concluded with some practical advice to the students, in which he spoke of the importance of their studying pathological anatomy, chemistry and histology, also of the importance of the microscope. For the practical application of the knowledge thus obtained they would have to study materia medica and therapeutics. He advised them to attend all the lectures, take notes of them, and to read up the subjects treated of in the lectures from the text books. He also urged upon them the duty of kindness towards the lower animals, and that they should never inflict unnecessary pain upon them.

Dr. OSLER, at the close, addressed a few words to the students. He said that during the past five years a change had come over tho public mind in reference to the veterinary profession; but he said its importance was realized much more fully on the European continent than in England or the United States. As to the status of a veterinary surgeon, it depended entirely upon himself, and in regard to this he could not do better than recommend them to follow the example of Dr. McEachran, as to the way in which he carried on his daily work, and conducted himself in every relation in life.

Army Veterinary Department.

Gazette, October 28th.

VETERINARY DEPARTMENT.—Veterinary Surgeon, First Class, C. G. H. Reilly, from half-pay to be Veterinary Surgeon, First Class; Veterinary Surgeon W. Pallin resigns his commission.

Obituary.

JOHN GERRARD, M.R.C.V.S., of Romford, Essex, died on October 1st, at the early age of 43 years, after a somewhat lingering illness, the cause of death being Melanosis. Mr. Gerrard graduated in 1869, and practised for some time in Market Deeping, Lincolnshire, whence he removed to Romford, where he was obtaining a large measure of confidence and support. The name of our deceased colleague will be familiar to the readers of the VETERINARY JOURNAL, as a frequent and always welcome and instructive contributor. Honest and sincere in all his dealings with his professional brethren, an earnest worker in the field of veterinary medicine, and one who would most probably have rendered it good and large service had he been spared, John Gerrard will be greatly missed from the literature and scientific meetings of the profession; while his untimely removal from among them will be deplored by all his friends, and they were numerous in the east, north, and south. Terse and pungent in his criticisms, his motives were always open, pure, and unbiassed.

The scientific spirit was so strong an element in his character, that when the grasp of death had all but crushed out the vital spark, he requested that an examination should be made of his corpse, in order that the nature of the then obscure and insidious malady should be ascertained for the benefit of science. His request was carried into effect. Most extensive melanotic deposits were found in the liver and spleen, which were enormously enlarged.

Retired Army Inspecting Veterinary Surgeon W. DEATH, F.R.V.C.S., died at the residence of his father, Abberton Hall, Colchester, on October 26th, aged 49 years. Mr. Death graduated in 1854, entered the army on January 27th, 1855, was promoted to the rank of First Class Veterinary Surgeon in 1863, and Staff Veterinary Surgeon in 1875. He served in the Crimea from June 2nd, 1855, to the termination of the war with Russia, for which he received the medal and clasp and Turkish medal. He also served in the Indian campaign of 1857-8, including the siege and capture of Lucknow, for which he was awarded the medal and clasp, with a year's service allowed for Lucknow. Mr. Death retired from the army a few years ago, through infirm health, and never recovered, but succumbed at last to Paralysis.

The death is reported of J. WATTAM, M.R.C.V.S., Stamford, who graduated in 1857.

Correspondence, etc.

THE VETERINARY SURGEONS ACT.

SIR,—It occurs to me that we should exhibit our sense of the value in which we hold the "Veterinary Surgeons Act" in a more tangible form than in mere expression of thanks to him who conceived and carried it to a successful issue.

I venture to propose that Mr. Fleming be presented with something which, while being sufficiently handsome, will, at the same time, be a fitting and enduring testimony of the value we individually and as a body set upon this last great service he has done the profession.

Let the opportunity to subscribe be given by circular to every member of the profession, both at home and abroad, and I very much mistake them if the collective response thereto be less pleasing than it will be surprising.

Will some gentlemen conveniently situated take the matter up?

Yours, etc.

10, Bread Street, Edinburgh, *Nov.* 4. R. RUTHERFORD.

CANINE PATHOLOGY.

SIR,—As I have elsewhere observed, "of all the domesticated animals subservient to man, the dog may, without fear of contradiction, be said to stand pre-eminent. His courage, fidelity, usefulness, and companionship attach him to the human race in bonds of lasting endurance." Pathologically, then, he is a fit and proper subject for study. His diseases are numerous, and oftentimes complicated; and year after year numbers of valuable dogs are lost either through neglect, empiricism, or ignorance. In my own profession, I know of no branch of study more interesting than that of canine pathology.

Feeding, nursing, general management, and surgical and medical treatment are all matters of vital importance. And I am quite sure the man who lays himself out for, and thoroughly understands, this subject, is duly appreciated and repaid; if not pecuniarily, at least by the peculiar gratitude of the animal, and the knowledge that he has been the means of alleviating suffering.

At the present time it is to be feared that unqualified "dog-doctors" are reaping the benefits that should legitimately accrue to the veterinary surgeon. And to whom is the blame due? Not the public, and certainly not the press, but the veterinary surgeon. If the health and life of a dog are of secondary value in the eyes of a professional man—a man whose duty it is to minister to his ailments—it should be no matter of surprise that the owner of such an animal will seek advice from those who profess a knowledge of the subject, whether they be charlatans or otherwise. But probably the root of the evil lies in not making canine pathology an enforced study at the veterinary schools. During my own collegiate course I only heard two lectures on canine diseases—one on Distemper, the other on Rabies. What about the hundred-and-one other maladies, to say nothing of accidents and operations? All these I have been compelled and pleased to study for myself; and, owing to a natural love of the subject and animal from early years, I have endeavoured, as far as possible, to make myself thoroughly conversant with the matter. In the great strides of progress our profession has made on all other points, it must be confessed that it has remained comparatively stationary as regards the dog. More than once I have argued the necessity for tuition in canine medicine, and I had hoped ere the year 1881 had closed that a chair of canine pathology would have been established at the Royal Veterinary College and its kindred schools. Fancy, it is but a short time since an empiric "dog-doctor" in London paid his visits in a neatly-appointed brougham! He is now *non est*, but his widow still dispenses, or did very recently, his prescriptions. Shall this be mentioned as a joke, or to the shame of our profession? The numbers of letters I receive from veterinary surgeons regarding canine ailments is a strong confirmation of my views, and I feel certain were such a step as that I have suggested taken, it would meet with general approval. Surely if the dog is thought good enough for vivisectionists to found their alleged discoveries on, he is good enough to make a study of in disease. I have been prompted to write these few remarks in the interests of my profession and the welfare of the animal they concern, and in that spirit I hope they will be received.

Yours, etc.,

J. WOODROFFE HILL, F.R.C.V.S.

"OUR FUTURE FEES."

DEAR SIR,—Now that you have gathered the legally qualified together into one "fold," separately and independently of the unqualified, I think action should be taken without delay, to arrange and institute a professional

tariff. It is not for the metropolitan practitioners I agitate, but those of our members who reside in the provinces.

Professor Robertson, at the Fellows' dinner, remarked that in Scotland the clients paid readily for advice, but they disliked being *physicked*. Now in England in many counties the qualified man gives out to the public the fact that "No fees are charged for journeys or visits," the custom being to make the fees out of "physic and drugs;" to me a most unhealthy custom, and one that should be discontinued at once and for ever.

I do not say this practice does not exist in the metropolis, for I have reason to know that it does to a limited extent; and I trust it will be abandoned by the few who practise it.

It is a system to which I would never submit, and during a professional career of a quarter of a century and upwards, I have had no difficulty in obtaining payment for visits and advice, independently of medicines.

Unless we have uniformity in our tariff, we shall never take hold of public esteem. We must appraise our services, and then the public will be led to *value us*. Much now-a-days depends on the price. Of course, every man may not hold gifts, or be equal to another; this will always be so; I am not speaking individually but collectively, and am seeking to set a fair and just tariff, so that in cases of dispute between surgeon and client, a Guide can direct them without appeal to the law.

I am unable to apprehend the position of the general county emasculators, respecting the new Act; for I know many practitioners decline operating, and if these castrators are to be registered, it will be unfair to the members; and if they are not registered, can they practise as heretofore? I think that all members should take these operations, even on principle, if quackery is to be thoroughly stamped out. The fee for colts has not been tempting in some counties, but I have always obtained a guinea each, or when I have had several in one yard I have thrown one in "for love," nothing more. Bulls 5s. if young, 10s. if old.

The examination fee should always be one guinea, and if a journey has to be made, travelling expenses extra. I always charge this, and am paid with pleasure.

I do not desire to enter into the question of charges for medicines. I prefer hearing the result of the discussion which I hope will be now opened, and in the end lead to a uniform system of fees and charges amongst the members of the R.C.V.S.

When such is arranged, and the rules of professional etiquette observed by the members, then will commence the epocha of the veterinary profession and its practitioners.

Faithfully yours,

London, W., *November 8th*, 1881. ROBERT WARD, F.R.C.V.S.

[This subject is certainly worthy the attention of members of the profession. It is one that should be discussed with a view to the reform indicated by Mr. Ward.]

BURSATTI.

SIR,—My belief is confirmed that nothing is to be gained by continuing a discussion on this subject with F. Smith. But in order that I may vindicate my former propositions on the subject, I will here beg to be allowed to make a few observations and notice the following objections raised by your correspondent:—

1. Mr. Smith's chief cause of complaint seems to lie in one point, namely, in the fact that I quote from *human* surgeons on Cancer. To prove the analogy between "Bursatti" and Cancer, it is only fair to quote the experience of human surgeons on Cancer, side by side with that of mine on

"Bursatti"; and I do not see what reason Mr. Smith has for complaint when I do this. Cancer in man and Cancer in the lower animals are, with perhaps slight differences in severity of manifestation, one and the same disease. Observe what M. Leblanc in the *Recueil de Médicine Vétérinaire* says —"Cancer in the lower animals is characterised by the cancer-cells which are observed when it attacks mankind."

2. Mr. Smith asserts that "*the best authorities* say that secondary deposits in internal organs as a result of Epithelial Cancer is the exception." This only goes to confirm what I have already said, namely, that Mr. Smith must first be well versed in the history of Cancer before he can be expected to effectually cope with the subject of Bursatti. I could here introduce quotations from several authors in justification and confirmation of my views, but I will merely give one. Instance what Dr. T. W. Cooke, "On the Allies and Counterfeits of Cancer," says—"It has lately, especially by Mr. Collins, of Dublin, been asserted that Epithelioma is not Cancer, and that it ought to be separated from the list of malignant diseases. I regret to be obliged to differ from a surgeon who has devoted so much attention and skill to this subject, *but it is impossible to resist the conclusions which result from experience;* and I think I am supported by others in the opinion, that although Epithelioma is, by operation, put away for a much longer period than any other form of Cancer, yet, *with very rare exceptions, it will crop out again*, and—either by infiltration of the neighbouring parts, or *by transference to some vital organ*—it will show that it is, after all, a constitutional dyscrasia, which cannot be got rid of by mere local eradication. Some great successes may happen now and then, and I will venture presently to record a few, and to show by illustration the happy results obtained. I have, however, noted that, after operation, although there was no apparent return of the disease, the patient in many cases died within a year or two of some undefined internal disease—which of course an optimist would say had no connection with the disease in the lip, but which, in the absence of a *post-mortem* examination, would, to the practised surgeon, be an indication of something more than a suspicion of a metastasis morbi."

Dr. Hamilton, Professor of Morbid Pathology in the University of Edinburgh, also teaches in his class that secondary and tertiary growths in internal organs are commonly met with as the result of "Epithelioma" in man. More than this, I have in my own possession specimens of secondary and tertiary growths in the lungs and liver of man, the subject of Epithelial Cancer. What stronger evidence would Mr. Smith require? But it is needless for me again to point out to Mr. Smith that "Epithelioma," even in man, though malignant, is the least so of all the cancers.

3. Mr. Smith allows having stated that "Visceral lesions have not been observed by me." It is premature of him, then, if his knowledge of the disease is so limited, to attempt to assume the position of an examiner on the subject of occurrence of "kunkurs" in internal organs.

4. Mr. Smith is quite in error when he states that I have "carefully avoided the Fly theory throughout." He is misleading when he further states that there is a "deep silence" on my side on the question of the microscopic appearances of the Bursatti sores. For a complete description of the microscopic appearances presented by the sores, I refer him to my articles on Bursatti contained in the VETERINARY JOURNALS for July and August last.

5. Dr. Jayne, of Edinburgh, after carefully examining the specimens of Bursatti sores sectioned and mounted by me, said "there was nothing *parasitic* about the disease."

Dr. George Thin, one of our best and most distinguished microscopists in England, in conjunction with our able Editor, Mr. George Fleming, after a prolonged and laborious examination of kunkurs received from Mr. Mey-

rick, of India, reported* in much the same terms, namely, that "nothing *parasitic* could be detected about these kunkurs," that they were in fact nothing more than "*cell concretions*"†— an opinion with which I, in common with others who have devoted years of study to this disease, wholly concur.

In conclusion, I must again repeat, for the information of Mr. Smith, that *many reasons surround the history, wholly irrespective of the microscopic view which may be taken of the nature of the disease (Bursatti), as being cancerous:*—1. *The peculiar onset and insidious course of Bursatti;* 2. *its malignant‡ tendency;* 3. *the properly it possesses of secondarily involving internal organs;* 4. *the peculiar pathological lesions it slowly induces;* 5. *its liability to recur in loco when once it has been apparently eradicated;* 6. *the total absence of pyrexia attending its course;* 7. *the absence of true suppurative changes in the lesions produced by it;* 8. *the inoperative influence of the disease-products upon secondary "hosts";* 9. *the characteristic cachexia of the later stages;* 10. *the onslaught waxing equally severe on animals inordinately strong, as on the thin and weakly, are all corrobarative evidences of the fact enunciated, that the disease is Cancer, evidences to which the most reluctant alienist must one day give adequate countenance.*

I have mentioned the rarity of death occurring from Bursatti *per se*. Mr. Smith seizes on this statement to endeavour to throw discredit on my observation of *post-mortem* appearances, although I know that he must be aware that horses rendered useless from Bursatti are, in the Government studs, killed, not allowed to die. Opportunities for *post-mortem* examination are frequent, and I have availed myself of them. Mr. Smith also quotes portions of sentences which apparently are opposed to the sense of the remaining writing. If he will quote each of these sentences *entire* they will defend themselves.

In the next month's Journal I hope to clear up definitely the subject of Bursatti considered in its various heads, and to point out the deficiences in past investigations.§ I remain, sir,

Your most obedient servant,

RICHARD W. BURKE, M.R.C.V.S., A.V.D.,

Aldershot, 18*th October*, 1881. Attached to Royal Engineers, Aldershot.

DEAR SIR,—As there seems a tendency to personalities in the discussion of this scientific subject, I would beg to suggest that specimens of Bursattee sores be submitted to some eminent microscopist for an opinion as to their nature. I feel sure that if an application is made for specimens there are many Indian veterinary surgeons who would comply. The only precautions to be adopted would be to inform them how to preserve the specimens, and request a certificate from the donor, stating his name, date of removal of the sore, and from what part of the body, its condition (chronic or otherwise), and the state of the system (whether simply local disease or general systemic infection). Believe me, yours faithfully,

India, 7*th August*, 1881. F. SMITH, V.S., 12th Royal Lancers.

* Vide VETERINARY JOURNAL.

† Many such concretions are shown in Dr. Green's "Morbid Pathology," p. 193.

‡ Malignancy, note, does not necessarily mean the implication of neighbouring lymphatic glands. Often the lymphatics are free where the system is charged with the disease; and in this I am supported by statistics drawn by human surgeons on Cancer.

§ In the VETERINARY JOURNAL for October, 1881, we notice the following statement:—"In old Bursatti sores *in the kunkur producing stage*, these hard masses must be periodically removed and destroyed."

PATHOLOGY OF NAVICULAR DISEASE.

MR. EDITOR,—Mr. J. B. Martin having reopened the controversy on the navicular disease with a long letter, although he states that he has neither time nor inclination to do so; under those circumstances, I ask the favour of your allowing me to make a short reply. Mr. Martin states that in my last letter I had insinuated that Messrs. Fleming and Greaves had made a coloured statement, and that I had taunted Mr. Barford. I deny having any such intention, and consider that Mr. Martin has no right to draw such inferences. I still think that Mr. Barford was not justified in making that statement, unless he was prepared with specimens to prove it. It is a very unusual circumstance for a pathologist who has made a large number of dissections which, he believes, shows that a certain theory (largely admitted to be correct) is not so, not to preserve one specimen in proof of his published discovery. I am not surprised at Mr. Martin's not detecting the enlarging and breaking down of the cancelli of the navicular bone of the young horse, when he states that he could only detect the porcellaneous appearance of the other navicular bone by the aid of a strong magnifying glass. He also states that he has sent the bone to the Editor for his examination. It would have been more discreet on his part if he had taken the Editor's opinion not only of the bone, but also of his letter, before publication. I can only repeat that the whole structure of the bone had become porcellaneous, and that it does not require the aid of a glass for its detection. Mr. Martin has entirely lost sight of the only way by which he could prove his theory, as I have before stated, by producing navicular bones, the cartilages of which are ulcerated, and the cancelli of the bones healthy. He also states that he has never seen any proof of the disease commencing in the centre of the bone, the reason for which is that he has never thoroughly examined the subject. With reference to his statement that my opinion is only theory, I beg to draw his attention to my notes in the August number; besides which, I may state that in 1869, when at Edinburgh, as a member of the veterinary deputation to the Scotch colleges, I exhibited to several of the members, including the late Mr. Wilkinson, W. Field, Professor Williams, and others, nearly three hundred specimens, not one of which showed ulceration of cartilage without the cancelli of the bone being diseased, but many of them were more or less affected with caries in the centre of the bone, and the cartilages free from all appearance of disease. Since that time I have shown the specimens to many members of the profession, who are willing to support my theory, if necessary.

THOS. D. BROAD.

Broad Street, Bath, *November 5th.*

DISEASE OF THE BLADDER.

SIR,—Agreeable to your request, I send you the history and treatment of a case of Uro-cystitis. The morbid specimen you have is from a bay mare aged five years.

On the evening of the 22nd of September my attendance was requested in great haste to this mare, which was said to be down and unable to rise, and was sitting on her hinder parts like a dog.

However, when I reached her, a distance of six miles, she was upon her feet, the hind ones being very wide apart—I should say fully four feet—with her back set up, and her ischium nearly touching the floor of the stable. She evinced an extreme desire to urinate, and as she had been a distance of twenty-five miles in the cart, and knowing that she refuses to urinate when the cart harness is on her, I at once withdrew a large bucketful of long-retained urine, and, with some difficulty, administered a cathartic ball. To the loins and abdomen I applied ammonia liniment, and clothed her warmly.

Pulse 95, and temp. 105°. For three or four days she had ordinary doses of aconite three times a day.

On the 27th the pulse and temperature were considerably reduced, and all swinging of her back had ceased; but there was much difficulty exhibited in flexing her hind fetlocks, and general stiffness in all her legs. Her appetite having returned, I determined to allow the *vis medicatrix naturæ* to do its part. I did not see her again until the 8th of October, when she experienced what the steward at the farm thought was an attack of Colic, and he treated her accordingly. I examined the bladder, and whilst emptying it a most disagreeable odour was emitted, and some matter resembling putrid pus escaped; something of a gritty nature also came against my finger, and which I had some difficulty in removing, having no other means at hand than my first and second fingers. This excrescence resembled plastic lymph and decomposing mucous membrane, with a sabulous deposit upon it. The portion I sent you is the largest I have taken, and was situated in the vicinity of the trigone of the bladder. The lesion whence it came is not filled up yet. I have taken another since from the neighbourhood of the neck of the bladder also. With regard to treatment, after the 8th of October I gave half-ounce doses of hyposulphite of soda three times a day, with an occasional aperient, and drew off the urine every alternate day, getting away each time much offensive matter and growths like that I sent you, but most of them were smaller. I inject into the bladder every alternate day from 20 to 60 drops of carbolic acid in one pint of linseed oil.

October 15th. Her appetite continues good, but when a concretion is about to enter the neck of the bladder she is in great agony. I am giving, in drinking water, 1 dr. nitro-muriatic acid three times a day.

October 20th. I am injecting, daily, 1 dr. of muriatic acid into the bladder, and no sabulous material is observed; but if I discontinue this lithotriptic treatment for three days there is a return of those growths. But the offensive odour is, I think, worse. The smell may be compared to a retained placenta, but, if possible, it is more offensive.

I would esteem an expression of your views of this case a favour, as I have not before seen a similar one, neither have I read of one.—Yours, etc.,

Glanton, near Alnwick, *Nov.* 6. WM. MARSHALL.

[There is, in all probability, a fungoid growth—probably of a malignant character—in the bladder. The portion forwarded, and of which a history was requested, was encrusted by lime salts, and appeared like a piece from a colloid cancerous tumour. The interior of the bladder seems to be extensively diseased, and the case is altogether of a serious character. The interior of the bladder should, if possible, be carefully explored, and an examination *per rectum* might assist in arriving at some conclusion—though in the mare this is not so advantageous as in the horse. Perhaps some of our readers will give their opinion of the case. If the mare is destroyed or dies, we should esteem it a favour if the bladder could be sent for inspection.]

NON-QUALIFIED PRACTITIONERS.

SIR,—As a non-diplomate of twenty years' standing, I shall be glad if you, or some M.R.C.V.S., in a responsible position, would explain to me the benefits I shall receive by paying six guineas to the R.C.V.S. to be registered. At present I am not clear upon the point as to whether or not the money had not better remain in my pocket.

I am, sir, yours faithfully,

HARTEST.

["Hartest" is referred to Clause 17 of the Veterinary Surgeons Act.]

CLAIMANTS FOR REGISTRATION.

SIR,—A cab driver named Mellor, living in the neighbouring town of Hove, boldly declares his intention of applying for registration as an "Existing Practitioner," because he has for some time "quacked" about amongst his fellow-flymen, and on the ground of his having "been with a Vet." some years ago. Surely the line will be drawn at cabmen!

Yours obediently,

Brighton. A. METHERELL, M.R.C.V.S.

[The admission of unqualified men to registration is in the hands of the Council, and every care will be taken as to the claims of those who apply.]

THE FITZWYGRAM TESTIMONIAL.

DEAR SIR,—Will you permit me to ask, through the medium of the VETERINARY JOURNAL, what has become of the Fitzwygram Testimonial Portrait or its fund? An announcement in the VETERINARY JOURNAL, for April, 1880, is all I have seen or heard of the matter. Perhaps Mr. Cartwright or Mr. Greaves would kindly give some information on the subject.

Yours very truly,

15*th November*, 1881. H. THOMSON.

TO CORRESPONDENTS.

G. TAYLOR, ROXBY.—The inoculating fluid employed in France to protect calves from Blackleg is not procurable in this country. It requires most careful preparation in the laboratory, and as yet the manner in which it is cultivated has not been made public. When it is we shall describe it in the Journal.

Owing to the extreme pressure on our space, many communications from Messrs. Mills, Burke, Reynolds, Ferris, and others, are unavoidably reserved until next month.

ERRATUM.

In the paper on Bursattee, page 334, line 11 from foot, for "also Cupri Sulph. locally; cover the parts," read "also Cupri Sulph.; locally, cover the parts."

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from: J. P. Martin, Rochester; R. W. Burke, A.V.D., Aldershot; W. F. Garside, London; R. R. Cole, Hinckley; J. Smith, A.V.D., India; J. C. James, Thornbury, Gloucestershire; A. F. Appleton, London; R. Rutherford, Edinburgh; J. D. Allman, London; T. D. Broad, Bath; R. Ward, London; R. Patterson, Downham, Norfolk; "Hartest"; W. Marshall, Glanton; Alnwick: F. V. Rainsford, London; E. A. Hollingham, Red Hill; J. H. Steel, A.V.D., Ipswich; J. W. Hill, Wolverhampton; H. R. Bradshaw. Portrush; Dr. J. Young, Glasgow; E. Stanley, Warwick; H. Thompson, A.V.D., 19th Hussars, Dundalk; J. McCall, Glasgow; W. O. Williams, Edinburgh; J. Clark, Cupar Angus; G. Grey, Romford; A. Metherell, Brighton; W. Broughton, Leeds.

BOOKS AND PAMPHLETS: *P. Friedberger*, Die Staupe der Hunde; *H. Puls*, Ueber Ursache und Tilgung der Lungenseuche; *M. F. Röll*, Die Thierseuchen; *E. Dele*, Les Maladies Contagieuses et Infectieuses des Animaux dans le Royaume-Uni; *G. B. Dalan*, Studii sulle cause delle Affezioni Carbonchiose; J. H. B. Hallen, Rough Notes Regarding a New Horse-shoe.

JOURNALS, ETC.: *Wochenschrift für Thierheilkunde und Viehzucht; Recueil de Méd. Vétérinaire; Revue Vétérinaire; Lancet; Live Stock Journal; Medical Press and Circular; Journal de Méd. Vétérinaire; La Presse Vétérinaire; Archives Vétérinaire; Journal of the Royal Society of England; La Clinica Veterinaria; Der Thierarzt; American Live Stock Journal; Edinburgh Medical Journal; Nature; Medical Times and Gazette; Repertorium der Thierheilkunde.*

NEWSPAPERS: *East Kent Gazette; Windsor and Eton Express; The Armagh Guardian; Montreal Gazette; Montreal Herald; Paddington Times; West Cumberland Times; Stirling Reporter; Syracuse Evening Herald.*

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